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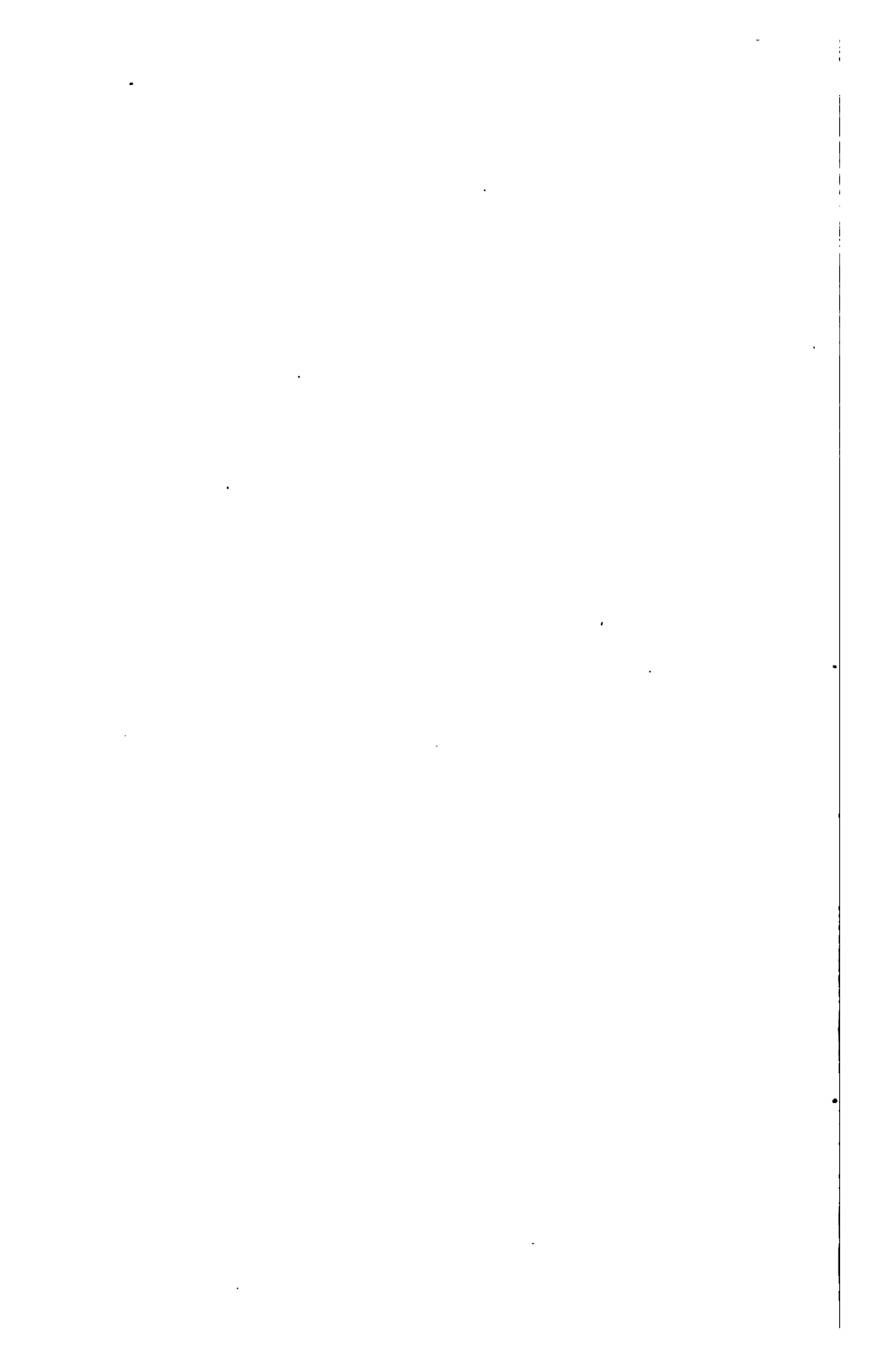
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THE
ANNALS
OF
INDIAN ADMINISTRATION.

EDITED BY

MEREDITH TOWNSEND.

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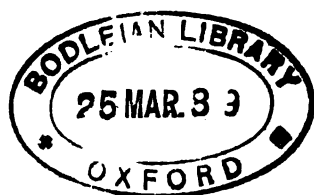
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ADVERTISEMENT.

THE Governments of India publish on an average a volume every four days. From Reports affecting the entire Empire to accounts of local drainage, from the opinions of the ablest officers to the cost of a cutcha bye-road in a frontier province, every thing finds a place in these publications. There is scarcely a subject connected with Indian Administration on which they do not exhaust official knowledge. There is no officer in the country who may not obtain from them, in reference to his special task, all the advantages of experience. The information thus vast is, however, widely scattered. The Records of one Presidency are scarcely known in another. The books are not very readily procurable, and above all they are like all other blue books dry, indigested, and overlaid with detail. It costs an hour to find a fact, and in India men who care about facts cannot spare hours.

The object of the Compiler is to remove this defect, to do for the official information of India what Mr. Leone Levi is doing for the Blue Books of England. The Annuals will comprise every fact, and almost every opinion of importance in the records of the quarter. A copious Index will enable the reader instantly to refer to the subject of which he is in search, and any peculiarity of opinion and even of style is carefully retained.

A word may be necessary on the arrangement adopted. It is intended that the most important subject should have the largest space, but in estimating the relative importance of the records the Compiler has been compelled to rely on his own judgment. Usually all subjects of imperial interest have the preference, statistics occupy the next place, and subjects purely historical the last. The only exception to this rule is in the case of records like the History of the Rohilcund Survey. They are not very important, and not at all interesting, but they can only be condensed to a certain point. Of the labour thus saved to the public, but one illustration must suffice. The Number contains 132 pages. The books analyzed comprize just two thousand five hundred.

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Out of 2,452 villages left to Government and nominally Khalsat, 60,000 were gone, the share of Government even in its own villages not averaging one-half.

Mr. Goldsmid found that many of these alienations were fictitious, and in 1841, suggested the expediency of additional precautions for the examination of the Poona records. In 1841, he was despatched to make arrangements for the papers relating to the Southern Marhatta Country. On his report, a Committee composed of himself and Moro Punt, Principal Sudder Ameen, was formed to investigate the titles of persons holding Enams in the Southern Marhatta Country. On the 17th January, 1844, Mr. Hart was added to the Committee and subsequently he and Capt. M. F. Gordon formed the Committee.

Between 1843 and 1846, the area of investigation was extended so to include the whole of the Southern Marhatta Country. The work, says Mr. Hart, has consisted principally in hearing statements made by Enamdars, and reporting on them, and in miscellaneous business; also reporting on the condition and proposed settlement of hereditary village offices. Between 26th May and 20th November, 1847, Mr. Hart began to pass decisions himself. That system however, though comparatively rapid, was abandoned, in consequence of doubts as to its legality.

Classified lists have been made of cases referred by the Collectors of Dharwar and Belgaum, amounting to 2,868. Large quantities of records have been collected. Information has been received as to the village establishments, and lists shewing the extent, value, &c. of each Enam in Dharwar.

The cost of the Commission in 1847 was Rs. 25,425-13-10. It is impossible to state the effect of the Commission on the revenue, but Mr. Hart calculates the permanent gain at Rs. 18,000 a year. He can form no estimate of the time to be consumed, but it will be great if he is compelled to report each case to Government. In a postscript, Mr. Hart gives some details of the financial result of the Commission up to 1848:—

Total actual expense of Commission, ... Rs. 66,395

Annual revenue recoverable in consequence of

Commission, ... 40,748

Government approves on 25th October, 1848, of Mr. Hart's report.

On 13th May, 1846, Mr. D. A. Blane, Revenue Commissioner, Northern Division, submits a correspondence from Broach relative to the investigation of Enam titles. The Collector of Broach wants an establishment. This is disallowed, and on 13th February, 1847, Mr. Blane submits another correspondence, saying the new Collector of Broach will dispense with the establishment, but has taken a view of Reg. VI. of 1833, the accuracy of which he (Mr. Blane,)

questions. In reply, on the 30th April, Government determines the interpretation of the Act, and orders Mr. Blane to ascertain exactly the position in which the proceedings for investigating the validity of rent free titles stand, in the several Collectorates under his control. On the same day the same order is sent to the Revenue Commissioner of the Southern Marhatta Country. Mr. Townsend, Commissioner of the Southern Marhatta District replies on the 26th Nov. 1847, that no investigation into Enams generally has ever been made in the Poona Collectorate. No regular enquiry has ever been instituted in Ahmednuggur, while in a sub-division under Mr. Tytler only doubtful Enam claims have been investigated. The acknowledged and registered Enams have not been touched. In Sholapore an investigation into the value and extent of the Enams in the four Southern districts has been made. That of the Warshashuns in the Sholapore district is nearly completed. In the northern districts a preliminary investigation has been made by the Mamlutdars. The quantity of Enam land held free of service is 83,115 acres, worth Rs. 37,959 a year. In Rutnagherry no general enquiry has been instituted. Little therefore has been done, except in Sholapore, and under the Sub-Collectorate of Mr. Tytler. Enclosed in Mr. Townsend's report is a letter from the Collector of Rutnagherry stating the general facts given above, but adding that :—

“By Regulation VI. of 1833 the period of enjoyment necessary to confer a prescriptive right is reduced from sixty to thirty years, whereas in the Rules of 1842 sixty years' enjoyment is requisite, as also two successions in lineal descent, when the claimant possesses no Sunuds or other documentary evidence in support of his hereditary title.” The Collector therefore would adhere to the Rules of 1842, and adds that the 80th year from the fall of the Peshwa is now current. He estimates the alienations in Rutnagherry at Rs. 77,653. In reply the Government on 24th January, 1848, remarks that it by no means follows that because an Enam is registered it is acknowledged, and declares that even under Reg. VI. of 1833, Government has power to enquire into titles. For, Clause 2 excludes from the thirty years' privilege all land alienated since the British Government obtained possession of the country, and without its permission, and the 3rd Clause excludes grants made without the authority of the Peshwa since 1803. The following eleven letters only carry on the official routine.

On 5th December, 1848, Mr. W. A. Blane, Revenue Commissioner, Northern Division, reports on the progress of the Enam Enquiry in his division, enclosing correspondence from all his Collectorates. In Ahmedabad there were originally 1,35,393 beegas of land in Khalsa villages wholly or partially rent free. Notices

affecting 18,190 beegas have been issued. Of these 8,980 have been declared exempt, or only to be resumed after a period, and 9,464 have been resumed, 3,923 beegas "are under notice, and the rest remain as they were." He believes the work requires a special officer. From Kaira the Collector submits a table which shews that 15,031 beegas of land have been under notice, while on 8,99,837 no notices have been served.

He reports that in cases where the titles have been found defective, the lands have been continued to the parties, as matter of favour, for a few years. On the passing of Act X. of 1831, and Act VI. of 1833, many parties maintained that they had enjoyed lands for sixty or thirty years, and recovered them. From Broach, Mr. Davies reports that in the four talooks of Broach, Wagra, Unklesur and Hansote the operations of the Survey leave nothing to be desired. In Ahmode and Jumboosur Talooks and the Mehal of Dehej no investigations have been made, though the proportion of alienated lands is very great. The titles still open to investigation are the service tenures, and prescriptive tenures, and Sircar lands alienated since the British Government obtained possession of the country. The prescriptive tenures amount to

Grassia lands per annum, ...	Rs. 2,82,012
Vechanea and Guranea, ...	44,317
Blood money assigned to Patels to secure im-	
munity from retaliation, ...	2,867
Hindoo Temple lands, ...	28,528
Mosque lands, ...	32,854
Total, ...	3,90,578

SERVICE LANDS.

Lands assigned in charity to individual Hindoos, ..	1,37,541
Hindoo Mendicant's lands, ...	2,115
Total, ..	1,39,656

Of the total amount there have been	
Investigated by Survey Committee, ...	Rs. 2,06,379
Not investigated, ...	3,23,879

Mr. Davies explains that the "old Wanta" or Grassia lands are held by immemorial tenure, and cannot be upset. The new Wanta are very generally surrendered by the holders. He proceeds to describe the tenures, and believes it impossible for the regular establishment to make any investigation. It must be effected by a Committee of which the Collector may be a Member. From Surat, Mr. Stewart reports that no regular enquiry has ever been instituted in the Zillah. The Survey officers

concerned themselves only with occupancy not title. If any Enamdar held more land than he was entitled to, it was marked as Wadara or excess, and in some instances assessment on these lands has been enforced. Mr. Stewart submits a table shewing that 1,07,917 beegas of land have been alienated in Surat, of which 497 beegas have been resumed under Reg. XVII. of 1827, and the holders of 912 beegas more have been served with notices. 1591 beegas have been confirmed to the holders, but of this quantity decisions affecting 1296 beegas have not been submitted to Government as required by Reg. XVII. of 1827. From Tanna the Collector reports that 1900 notices have been served, but no final decision has been received. He suggests that an Assistant Collector should be appointed to the work, and questions the necessity for examining all such claims. He also deprecates the practice existing in the Collectorate of attaching all Enams on the death of their holders till the decision of the Government is known. He adds that 2386 beegas have been investigated, and 2553 remain to be enquired into. From Khandeish the Collector reports that the extent of Enam land is 3,28,525 beegas or Rs. 4,10,396 a year. Of this there has been

	<i>Beegas.</i>	<i>Revenue.</i>
Confirmed by Govt., ...	1,87,539	Rs. 2,50,778.
To be investigated, ...	1,35,985	,, 1,59,623

The Agent at Colaba reports that alienations amount to Rs. 14,722 a year, of this amount the holders of Rs. 12,576 have registered their sunuds. Promises to enquire further.

On 9th April, Mr. Shaw sums up the results of these investigations in the northern and southern Divisions thus :—

“The amount thus alienated would appear to be estimated for both divisions at an annual valuation of Rs. 82,14,787-15-8 for the year 1846-47, of which large amount Rs. 36,71,034-8-2 appertained to this division (vide figured statement following), distinguishing Rs. 8,09,413 as service lands to Patels, Koolkurnees, and others, and leaving Rs. 28,61,621-8-2 as the amount wholly alienated from Government.

Divisions.	Amount entered in Col. 6 of Statement A, accompanying Col- lector's Annual Re- ports for 1846-47.			Amount entered in Col. 8 of Statement A, accompanying Col- lector's Annual Re- ports for 1846-47.		
	Ra.	A.	P.	Ra.	A.	P.
Ahmedabad, ...	80,394	15	0	8,18,166	9	3
Kaira, ...	74,989	4	11	8,48,053	8	10
Surat, ...	1,01,951	6	6	4,88,086	3	5
Broach, ...	1,71,731	1	2	7,50,518	5	8
Tanna, ...	37,768	0	8	1,95,931	7	10
Khandeish, ...	3,42,578	3	9	5,56,364	1	0
Agent at Colaba, ...	...	...	...	13,914	4	2
Total Northern Division, ...	8,09,413	0	0	36,71,034	8	2
Total Southern Division, ...	22,39,155	6	5	45,43,753	7	6
Total Northern and Southern Divisions,	30,48,568	6	5	82,14,787	15	8

The Collectors universally, with the exception of the Agent at Colaba, are of opinion that they have not the means to commence a satisfactory enquiry. Mr. Shaw quotes their suggestions, and requests that one officer should be appointed as Assistant to the Collectors of the Division, and be guided by the rules drawn up by the Enam Commissioner of the Southern Marhatta Country. He does not propose to relieve the Collectors of any responsibility, but simply to extend aid to them. On 9th October, 1849, he submits a letter from the Collector of Surat. Mr. Fawcett reports that the term of 30 years fixed by Reg. XVII. of 1827, Cap. 10 having nearly expired, his predecessor issued 15,017 notices. 996 had been issued before. There are therefore 16,010 cases to be disposed of. The present establishment will not be able to dispose of them for years, during which time the holders' titles must remain uncertain. Suggests therefore the adoption of extraordinary measures for the disposal of this business.

On 27th June, 1848, Mr. Hart, Enam Commissioner, submits observations on the expediency of placing the Enam Commission on a more definite and satisfactory basis. He observes that while the rules for determining titles appear sufficient, the means for enforcing them are deficient, and an enactment remedying such deficiency would be of great public advantage. When the Regs. of 1827 were introduced, the rules contained in them for the conduct of Enam investigations were declared inapplicable to these provinces. The adjudication of titles remained therefore in the hands of Government. Since the Enam Commission was founded, the cases have been too numerous for

Government to decide. For this reason and others Government prescribed a system, by which an appeal from the Enam Commissioner was made to the Revenue Commissioner, and in a certain class of cases to Government. Not long afterwards it was ruled that Government alone could decide finally on this class of cases, and Government was compelled to revert to the old system, just as objectionable now as before. Mr. Hart proceeds to illustrate the inconvenience by a reference to results. Under the old and present system in the 4 years preceding 1848, 872 claims were reported, and 862 decided. In the six months between June and November, 1847, the claims disposed of amount to 638, shewing that the proportion of work done is 6 times as great. The reason is that the Revenue Commissioner was content with a record in the vernacular, and no time was lost in translation. There are still 58,000 holdings to be investigated. Of these 30,545 being service holdings may, it is true, be speedily disposed of, but still the remaining 28,000 must be carefully and separately examined. Another reason for such an Act is that the power even of Government for absolute resumption in any case, however groundless the title may be, is doubtful. Mr. Hart has reason to believe that the Sudder Adawlut is of that opinion. Lastly the Remembrancer of Legal Affairs holds that the Enam Commissioner should be kept out of sight, and that this officer has no power to cause the production of evidence. The Enam Commissionership has passed its ordeal with approbation. The remedy for the evils of its constitution is simple, and Mr. Hart annexes a sketch for the Act required.*

On 20th June, 1849, the Hon'ble Court praise and recapitulate Mr. Hart's Report, but are of opinion that further measures are expedient. The Court considers the report to Government in every case unnecessary. In ordinary cases an appeal to the Revenue Commissioner is sufficient. Those cases in which the rules strictly interpreted would operate harshly, should alone be reported to Government.

On 7th January, 1850, the local Government recapitulates the facts to the Government of India, and recommends that the duty of investigation should be entrusted to one Chief Commissioner with Assistants. It requests also that a Draft Act (given) may be passed, applicable only to the Southern Marhatta Country, Deccan and Khandeish; the law can subsequently be extended or modified for Guzerat and the Konkan. The Government considers that the Commission should be its own Appellate Court, the Assistants deciding with appeal to the Commissioner, the Court of Directors having expressed an opinion unfavourable

* Sketch not given.

to Adawlut in such matters. On 27th September the same Government asks for a reply.

On 11th October, 1850, the Government of India apologizes for delay, sanctions expenditure, but feels a difficulty as to the Act from the absence of any definition of a good title. It approves the scheme for appeal, and points to Reg. XVII. as supplying a definition of titles, and rules of procedure. On 28th November the Government of Bombay appoints Mr. Hart, Enam Commissioner on Rs. 2,000 a month, and directs him to furnish the Rules required by the Government of India, and a system of procedure. It also directs him to add to the Draft Act Clauses conferring on the Commission, original and appellate power. Also requests his opinion on some other matters of detail. On 30th December, Mr. Hart replies submitting and explaining an amended Draft. He objects to rules in Clause 9 of Reg. XVII. of 1827, as in themselves unjust, and unsuited to the country. He gives reasons for condemning Clause 10 of that Act. He argues also that those rules never did apply to the conquered territories. Mr. Hart proceeds to describe the Draft Act. On 1st January he forwards also a Code of Rules, and observes that it is merely an arrangement of the Rules of 1839, and 1842 already approved by the Court of Directors, with some additions described at length.

The remaining correspondence discusses alterations of detail in the Act. The Act was passed on 13th February, 1852, as

ACT No. XI. of 1852.

The Preamble states that in the Bombay Presidency claims against Government for Enams are excepted from the cognizance of the civil courts, and former Rules are inapplicable.

1. Repeals former rules in all provinces not brought under Regulations by Reg. XVII. of 1817 of the Bombay Code.

2. The Governor may appoint an Enam Commissioner and Assistant.

3. Their duties are regulated by Schedule A.

4. Titles shall be determined by Schedule B.

5. The Commissioner and his Assistants possess the ordinary powers of a Civil Court. Complaints are cognizable only as specified in Rule 2, Schedule A.

6. Bribery or abuses committed by any officer of the Commission are punishable with fine, and imprisonment not exceeding five years. The receipt of a present is an abuse. Such penalty shall not preclude Civil Action.

7. No decision shall be questioned in any Court of Law, nor shall, any Member of the Commission be liable for an act done bona fide.

SCHEDULE A.

The duty of the Enam Commissioner is to investigate the titles of claimants of Enams or exemptions. 2. All orders of the Assistants are appealable to the Commissioner, and orders of the Commissioner to local Government. 3. The Enam Commissioner shall receive and record evidence from claimants. 4. These statements may be received also through the Revenue Authorities without any previous procedure, except an invitation to claimants to state their titles. 5. When such invitation is not attended to, a notice may be issued requiring claimant personally or by Agent to shew title. The notice shall state nature of investigation, date, and the liability on non-appearance to attachment of estate. 6. Notice to be served upon proprietor, or person in charge. 7. If neither can be found it shall be posted in the office of the native Revenue officer, and public place of the village, calling on claimant to prove his title in six months. 8. Attachments shall be enforced by Collector on written requisition of Enam Commissioner. 9. When statements have been received they shall be tested, and compared with State Records, or other evidence, and decisions passed. 10. If parties do not appear the Commissioner or his Assistant shall proceed *exparte*. 11. An attachment may be removed on the requisition of Enam Commissioner, but the results collected shall not be restored except under general or special instructions of Government. 12. Copies of decisions shall be given to the parties, or sent in their absence to the revenue authority of the Talook. 13. Decisions shall be carried out by Collectors in any manner specified by Government. 14. Appeals may be presented within 100 days from decree. Appeal may be admitted subsequently if good cause is shown for delay.

SCHEDULE B.

Rules for the Adjudication of Titles.

1. All lands held under specific and absolute declaration of the British Government or competent officer acting under it, continue according to such declaration. Provided that if question arises as to the competency of the officer, the Government shall decide.

2. Any land held under a Sunud declaring it to be hereditary shall be continued according to Sunud. Provided that authority granting or recognizing the grant was competent, such competency to be decided by Government. And also that conditions of tenure involve no breach of law, or of the rules of decency. And also that the grant has not been revoked or altered.

3. "Lands held uninterruptedly as wholly or partially exempt from assessment for a period of sixty years before the introduction of the British Government, and then in the authorised possession of a grand-son in male descent, or male heir of the body of such grand-son of the original grantee, shall continue to be so held so long as there shall be in existence any male heir of the body of the person who was incumbent at the introduction of the British Government, tracing his lineage from such incumbent through male heirs only."

4. "All lands, uninterruptedly held as wholly or partially exempt from assessment for a period of forty years before the introduction of the British Government, and then in the authorised possession of a son, or male heir of the body of a son of the original grantee, are to be continued for one succession further than that of the person who was incumbent at the introduction of the British Government, that is, until the death of his last surviving son."

5. Provided that the mere entry of the holding in genuine accounts of district officers shall prove authorized possession, unless there are entries which prove that such holding must have been unauthorized by Government or Paramount Power. Also that if there be no evidence in disproof, claimant's right shall be admitted. Also that the introduction of the British Government shall be reckoned from the time when the East India Company became the paramount power as respects Enams. Thus in the Peshwa's territory it begins from the close of the Government of the Peshwa. On the lapse of an independent principality or Jaghire older than the Peshwa's Government time must be counted from the date at which the general management of the districts came into the hands of the Company. In cases of doubt Government will decide. 6. Exempt land the right to which is not admitted, will be resumed at the death of the incumbent. Provided that the word incumbent shall apply to person in possession when investigation is commenced. Also that in case of a recent fraud the Enam shall be resumed at once. 7. All Lands held for Mosques, Temples, or permanent institutions shall be permanently continued. Provided as in Rule 2. Also if in such a case there is no evidence to prove the consent of paramount power, 40 years' possession shall suffice. Also unless evidence is forthcoming to disprove assertion of continuous possession the title shall hold. Also, the advantages of this rule, shall not apply to individual claimants. Claims under this rule if not admitted are to be decided by Rule 6.

"All lands authorisedly held by an official tenure, which it is evident from local usage was meant to be hereditary, and has been so considered heretofore, even though there be no Sunuds declaring it to be so—are to be continued permanently."

8. Provided as in Rule 2 even if no proof of consent by competent authority is forthcoming, continuous possession shall suffice. But this Rule does not apply to emoluments for service performed to the State. Mere length of enjoyment of land by an official does not bring him under this rule. If a claim under this Rule is not admitted, claimant shall be allowed the advantage of any preceding rule applicable to his case. 9. On the lapse of lands a moiety may be continued in cases of poverty to widows of last incumbents. Provided that the widow of the holder of an hereditary exemption who dies without heirs shall be considered his heir. 10. These rules shall not be necessarily applicable to service or political tenures. 11. These rules may be relaxed under instruction from Government of Bombay.

• THE POONA DUFTUR.

Bombay Records, No. XXX.—New Series.

On 15th September, 1819, Mr. J. Macleod, Secretary to Mr. Elphinstone, describes the Poona Duftur, as the official record of the Peshwa's Government. In it were kept all accounts of the revenue and expenditure except the private accounts of the prince, and such statements as it was not the interest of individuals to record. The Duftur was very complete till the reign of Bajee Rao. That ruler adopted the farming system. The Duftur was divided into three or four departments all under the Hoozoor Furnavees. The Fur was the immediate office of the Furnavees. All grants issued out of it. It was the depository of financial information.

The Behera department received the accounts of the districts, and made them up for the inspection of the Furnavees.

The Surinjam department had charge of all Surinjamis.

The Ek Berij department at Poona received accounts from all others, and framed abstracts and registers of all financial transactions.

The Duftur at Poona contained all official accounts of district settlements, and villages, rendered by the officers of Government, of all alienations of revenue, of all privileges, rights and pay of State and village officers, of the strength and pay of troops, and of all establishments. The accounts were well kept up to the accession of Bajee Rao. From that time the Duftur was neglected, people permitted to carry off records, &c. Poona was occupied in November, 1817. The records were found in disorder, but nearly complete from 1729 to 1817, except those

from 1757 to 1763. During the reign of Bajee Rao they are by no means complete.

The accounts shew a remarkable degree of consistency and relative accuracy, though they may have been altered to suit individuals.

On the foundation of the Duftur establishment under the Commission the Duftur has been arranged, partly by districts, and partly by Pergunnahs. Full statements of all allowances and exemptions have been forwarded to the Collectors. The Dufturs of the Konkan for ten years have been sent to Bombay. Abstracts of the produce, deductions, and revenue during the last year of Bajee Rao have been framed and authenticated. Mr. Macleod describes the measures of authentication. The Duftur contains much curious general information, especially as to taxation and the Peshwa's army.

On 9th May, 1826, Mr. Chaplin, Commissioner in the Deccan, again describes the Poona Duftur. It is of importance that these documents, now well arranged, should be kept entire. He recommends, as the trust may be easily abused, that it should be confided to a Civil Servant on Rs. 1,400 a month. Also that the duties of the native Dufturdar should be extended to all the Collectorates. They are so extended in Madras. The duties of the native kutcherry may be discharged under the direct orders of Government. Mr. Chaplin proceeds to describe the functions of the native establishment under a Civilian Superintendent of the Duftur. He reports that complaints are constantly coming in which should be investigated by the Superintendent, and decided by Government. Recommends Mr. John Warden as Superintendent, Mr. Steele for a temporary Assistant, and the existing Dufturdar for Sheristadar. Estimates annual cost at Rs. 23,808, and subjoins list of statements to be furnished to Superintendent by each Collectorate. (List not given.)

On 19th May, the Government sanctions Mr. Chaplin's proposals.

On 4th June, 1835, Mr. S. Marriott, Agent for the Poona Sardars represents that the records have been kept under the "general care" of the Agent's Sherishtadar, but the plan is inconvenient. Recommends appointment of a Keeper of the Records.*

On 4th September, 1835, the Government order that five native gentlemen shall be appointed unpaid Superintendents of the Duftur, that they shall have only two writers, that the key shall remain with the Chief Superintendent, and that two of them shall always attend the opening of the Duftur. On 9th

* There is a hiatus in these papers. Mr. Chaplin's proposal, though sanctioned, seems not to have been carried out.

October, Mr. Bell, Agent for the Sirdars, replies showing that the Superintendents request an establishment, and that a personal attendance would be inconvenient, but that they accept the charge, and offer various suggestions for its fulfilment.

On 26th October, 1835, Government sanctions the Superintendents' requests, but slightly diminishes the establishment, and directs them to investigate all frauds and report the same to the Magistrate. On 1st August, 1836, Mr. Bell transmits a Report from the Superintendents. They state that 1,300 bundles of papers have been arranged and 18,000 require arrangement, which will be effected in five years. Mr. Bell says the expense of the arrangement is Rs. 23,544 a year, and doubts its advantages.

On 6th September, 1836, Government refers the question to the Revenue Commissioner, Mr. T. Williamson, who on 9th December replies, recommending the continuance of the existing arrangement, as an investigation of Enam Titles is desirable, and he verily believes that "if Government had a competent officer available to enquire" into them "many titles would be found invalid," to the advantage of the Revenue. Accordingly on 28th January, 1837, Government overrule Mr. Bell, order the continuance of existing arrangements, and direct him to accept an offer of the Superintendents to register such papers as are indispensably necessary for public use in two years.

On 7th November, Mr. P. W. LeGeyt, Acting Agent for the Poona Sirdars, encloses a Memorial from the Superintendents requesting an extension of time. They have registered 7,712 bundles of papers, and arranged 900; 5,000 more remaining to be arranged. Mr. LeGeyt supports the proposal for extension of time. On the 3rd January, 1839, the Government hears the demand with regret, but grants extension to 1st June, and directs that a copy of the Register should be forwarded to Government.

On 3rd January, 1839, a Committee is ordered to report on the best method of preserving the Poona Duftur. The Committee consists of Mr. R. Mills, the Agent, Mr. Frere, the First Assistant Collector and such of the Superintendents as are in Poona. The report on 1st June, 1839, that the papers are well arranged, but there are eight rooms full of fragments, some of which may be of value. They are of opinion that a further outlay must be incurred; and suggest that a European should examine the documents thrown aside. They also recommend that the whole of the records should be forwarded to the Collectorates to which they belong. If it is determined to preserve them they recommend that they be left with the Superintendents. Mr. Mills in enclosing this report suggests that the examination of the eight rooms full of records will cost

money, and that the fragments had better be sold as waste paper. On 9th September, 1841, the Government censures Mr. Mills for delay, orders him to "transfer to the several Collectorates the Zharteas and Taleebunds appertaining to them," and to have the fragments gradually examined by the native Superintendents.

On 2nd April, 1842, Mr. H. E. Goldsmid, Superintendent, Revenue Survey, Southern Marhatta Country, informs Mr. Warden, Agent at Poona, that he has not received the documents relating to this territory, and has reason to believe that they are detained by influential personages. He requests therefore that the papers may be made over to a Karkoon, appointed by Mr. Hart. Mr. Warden in consequence reports to Government that he cannot make over the papers, but has ordered them to be locked up, and thinks Mr. Goldsmid had better examine them. On 23rd April, 1842, Mr. Goldsmid is directed to repair to Poona. On the 11th February, 1845, Mr. Goldsmid forwards his report on the condition of the Duftur. After recapitulating certain proceedings of the Agents, and certain correspondence on the arrangement of papers, he proceeds to say that the arrangements, and catalogues ordered by the native Superintendents appear sufficiently good. But no means are taken to prevent the substitution of fictitious papers, valuable and useless papers are put together, and documents are put up as a whole which were found in parts. The seal, made by a common silversmith of Poona, can be imitated, and in 1841 stamping was abandoned. He describes the useless character of many documents put up, and mentions that the Karkoons have put up the records of Khurch or expenditure, which are totally useless to Government, with the Jumma or receipts, a statement of high value. Mr. Goldsmid also remarks that the abstracts of the Duftur taken by Capt. Macleod are imperfect, and too much condensed, but valuable. They might be curtailed but not abstracted. The Rozkhirds, Ghurneas, Beras, and some other statements ought to be condensed into tables. He also recommends that the ledger prepared by Capt. Macleod should be collated with the Peshwa's diary, and other accounts, and that extracts should be made of all accounts relating to Enams. Until such a check is prepared the officer employed to search the accounts must be all powerful. The better arranged of the scattered papers Mr. Goldsmid finds to be of importance. The remainder he thinks may contain documents of value. Condemns the plan of sending them to the different Zillahs without precautions against fraud, and recommends the adoption of certain improvements in the mode of keeping the records.

Mr. Warden in his letter of the 28th February, 1845, enclosing this report, commends Mr. Goldsmid's quickness and clearness, and recommends that he should hereafter finish his examination, explains the disappearance of some papers and observes. The reason "none but persons long conversant with the documents could know in what direction they should turn when searching for particular information" is, that the office of Duftur Karkoon was hereditary, and the son served his apprenticeship to it while his father was yet alive to teach him the mazes of the labyrinth; and the service of these persons was obtained by Mr. Elphinstone, and their honesty secured, by high pay and reversionary pensions,—one Rowjee Pense still lives at Poona, and is referred to on doubtful points. Mr. Chaplin's safeguard (says Mr. Warden) was the appointment of a Canarese Brahmin from the Ceded Districts, who was not mixed up with the private interests of the Peshwa's subjects, to the office of Record-keeper, on a salary of Rs. 500 a month, and a reversionary Enam of Rs. 4,000 per annum. He, again, was succeeded by his son. Mr. Warden objects decidedly to native Agency in the matter. The temptation is too great.

On 25th August, 1845, the Government commends Mr. Goldsmid, but states that a reference has been made to the Court of Directors.

The remaining correspondence relates and rebukes the remissness of certain Collectors in not stamping papers, received from the Duftur, with sufficient speed.

CONCEALMENT OF RECORDS BY HEREDITARY OFFICERS.

Bombay Records, No. XXIX.

On 25th March, 1854, Capt. T. A. Cowper, Assistant, Enam Commissioner, reports on the Surinjam of the Nuggurkur family. At the conquest their Surinjam consisted of land worth Rs. 8,695 a year as jagheer, and R. 694 as Enam. Mr. Elphinstone decided, in spite of a Sunud signed by Bajee Rao, that this Surinjam should belong to Ramchunder Mahadeo and his nephew. The decision appears to have been acted on, and by a final arrangement the exemption was continued for two generations, a pension being granted to the third. Capt. Cowper in reporting upon the position of the estate discovered that a portion of the Surinjam had been entered fraudulently as Enam. This is proved by the

title deeds, by the Peshwa's Memoranda, and by Mr. Elphinstone's release. The accounts of the village were examined. The records for 1818 and 1819-20 were not forthcoming. In those of 1820-21 it was entered as Shet Sunud land. In those of 1821-22 it was entered as Shet Sunud land under the head of Enam. From that year to the present it has been so entered. The claimants are Koolkurnees of the village and must be held responsible. The Assistant Commissioner therefore restored it to its heading as Surinjam. Capt. Cowper continues complaining of the concealment of accounts by this family. They had at one time functions in Ahmednuggur similar to those of the Enam Commission. One branch of the family declare the records were destroyed by vermin. The other branch say they were destroyed at the capture of a fort. In 1853, Capt. Cowper had found an account lent by this family in consideration of Rs. 15 to settle a boundary dispute. A bond also for Rs. 250, was executed, to be enforced in case of the non-return of the paper. He also discovered a catalogue of other accounts which must have been in the same hands. He has not been able to discover the accounts. These documents he believes are concealed to reagitate questions finally settled by the Enam Commissioner.

On 30th April, 1855, Government determine the question as to the Surinjam and direct Capt. Cowper to summon Gunput Rao Neelkunt before him, and point out the dangerous position in which concealment places the family. Captain Cowper is also requested to report as to the possibility of defeating the intentions of the family by a Draft Act. On 7th August, Capt. Cowper, Enam Commissioner of Northern Division replies. He considers it proved by Mr. Elphinstone's and Mr. Chaplin's reports that the falsification of accounts was of frequent occurrence. It remains to show that this was accompanied by an universal concealment of accounts. Hereditary officers convicted of the offence have of late been punished by the stoppage of two months' pay. The accounts produced during the Revenue Survey in the Deccan have been usually manufactured. He must advert to the enormous alienations in Tanna, Rutnagherry, Surat, Kaira, Broach, and Ahmedabad where Reg. XVII. of 1827 is very inadequate, and indeed inoperative when accounts are withheld. Capt. Cowper proceeds to describe the origin of his discoveries. Act XI. of 1852 was useless to adjudicate claims about which no documents existed in the Peshwa's Duftur. The want of other records was also felt in the Southern Marhatta Country. In 1851, a notice was issued in Sholapore directing Government officers to surrender public accounts in their possession. Each was required to declare

in writing that he had retained nothing. The result was nil. The hereditary officers denied the existence of accounts, but produced any calculated to serve their own interests. A similar attempt in Poona similarly failed, only some forgeries being given in. The object of this concealment was to prevent the recovery of alienated lands, a fact exultingly hinted at in a petition against Act XI. of 1852 submitted on 17th Nov. 1851. On the passing of that Act the Enam Commissioner pressed on Government the importance of securing such documents, and was told to take possession of them. Under these instructions at Bagulkote in Belgaum a set was found in possession of an hereditary officer. In 1846, this man had produced only 29, denying the existence of others. In 1852, 1800 accounts were found with him. In April, 1852, Mr. Hart directed Capt. Cowper to secure some accounts said to be in the possession of Janoba Despandey of Sewapore, who was insane. Capt. Cowper took charge of the Duftur and some hundred bundles of accounts, and learnt from Janoba that a large Duftur ought to be fourthcoming. On the evening of the same day, 24th April, 1852, he received information of the existence of 1000 bundles in the house of the Despandey at Sewapore. Capt. Cowper travelled all night, reached Sewapore at daybreak, and found in the upper story of the Despandey's barn about 1000 bundles, each 1½ feet cube in size. Subsequently he found another mass built up in a wall of a Karkoon of the Despandey. They were chiefly Sunuds. All were brought to Poona. Acting on orders from Mr. Hart, Capt. Cowper attached the records in the possession of the Mahal Zemindars, and on 4th May, 40 bundles more concealed in the house of Wamun Ramchunder Despandey. In June, 1852, the head of the Rastia family surrendered a large collection. His predecessor had denied their existence, though the first and best of the Deccan Sirdars. In fine, 150 persons had been found in possession of many thousands of these documents in the south-eastern portion of Poona. Capt. Cowper had expected to find some accounts in the hands of the Soopa family, who however concealed the whole with the exception of one bundle. In 1852, the family of the Despandey of Jooneer ceased. The widows professed an anxious desire to surrender all accounts. Captain Cowper found them concealed, but recovered some in the Despandey's Duftur, 164 bundles in a built up recess belonging to the Gomashta of Khair, and a tolerably complete Duftur at Chuchoollee, and reported in favour of the discontinuance of the office. Capt. Cowper quotes an opinion from Mr. Hart adverse to the continuance of Despandeys, and Government on 6th January, 1853, abolished this one.

11 In Sept. 1852, Captain Cowper found accounts in the

shops of shroffs and snuff-sellers of Poona. He also obtained 330 bundles from the Waug family of Monganun. These had in 1819 been concealed. In another instance Capt. Gordon obtained 4 cart loads of accounts from the Deshmook family of Poona. They refer to the Nuggur Collectorate, and in 1820 had been sought in vain. It seemed to Capt. Cowper certain that these concealments would entail great loss upon the State. In November, 1852, an immense mass of papers, the existence of which had been denied, were sold to grocers and fire-work makers. Several sackfuls were recovered, but 260 lbs. had been used up by a grocer. Capt. Cowper remarks that concealment of British accounts is punishable, but concealment of the Peshwa's accounts is not punishable. Yet, the latter involve the revenue and titles.

By November, 1852, Capt. Cowper had recovered from 400 persons in 70 different villages many hundred thousand accounts in the 3 northern districts of Poona. By December, 200 persons in Poona alone had been found in possession of enormous numbers (50 or 60,000). On 6th December, 1852, Mr. Hart had reported that in one small division 24 dufturs had been discovered in one month, concealed by officers who hold exemptions for preserving the papers. In another case, Capt. Cowper found a valuable collection in the hands of a Moonsiff, a 2nd Class Sirdar, who had concealed them for 35 years, and defended his conduct by falsehood. On 25th February, 1853, Capt. Cowper reported that a valuable set had been discovered in the hands of the Furnavees of the Nuggur family.

An attempt, says Capt. Cowper, has been made to procure the accounts of Ahmednuggur. A large number have been obtained, but the attempt is comparatively a failure. The hereditary officers have removed the accounts by cart loads below the Ghauts where Act XI. of 1852 does not apply. In this state of the law alienations in Guzerat and the Konkan can never be examined. On 19th May, 1848, the alienations in Guzerat alone amounted to thirty lakhs of Rupees, to which must be added some coming under the head of political charges. There are also cash payments to an extent unknown elsewhere. In Surat above Rs. 1,50,000 are annually paid for "Tora Girass" allowances. No enquiry can take place without the records. Collector after Collector has pointed out the iniquity, but no enquiry can be useful without the records. Capt. Cowper proceeds to detail the measures necessary to check the practice. The greatest existing defect is the absence of a specific provision for searching for concealed records. In Madras under Section 9 of Reg. IX. of 1822, a Collector can issue a search warrant for records on receiving information on oath. This power if entrusted also to

the Commission would be sufficient. No duplicate list however of papers can be made, as the law directs in Madras. The Madras Code punishes hereditary officers for destroying or concealing records by imprisonment for not less than 1 year or more than 5 years.

Of all measures, however, one declaring the emoluments of any hereditary office to be forfeited would be the best. The offices are shared like all property, and are held on the tenure of keeping these records. A proclamation would suffice. Public accounts which remain concealed should after a proclaimed date be declared inadmissible in evidence. Government has laid down the principle that pensions shall not be paid if accounts are concealed, but it should be carried out more stringently. Capt. Cowper proceeds to shew how the revenue has been affected by the Enam Commission. Only Rs. 81,698-9-0 have been spent on this portion. The recovery of revenue is Rs. 1,22,918-1-1. Deducting Rs. 40,995-4-1 spent in arranging accounts of the former Government, the recoveries amount to 3 times the expense. The addition to the permanent revenue will be Rs. 78,698-15-10. Deducting the amount spent on the accounts of the former Government the permanent increase of revenue is double the expense.

"I should fail, says Capt. Cowper to present to Government what I believe to be a complete statement of the case, did I omit to place before them my strong and deliberate conviction that it would be far better at once to put a stop to all enquiry whatever, and to recognise every existing alienation, than to continue an investigation while four-fifths of the documentary evidence upon which alone it can be properly based, and in the absence of which no decision can be final, remain in the possession of the persons who, of all others, have the strongest possible personal interest in baffling and impeding it."

The Right Hon'ble the Governor on 3rd November, 1855, approves Capt. Cowper's report, assents to his views, and considers an enactment punishing the concealment of revenue accounts imperative. He also in a subsequent Minute (no date) approves making co-sharers in an office responsible, because if the duty is not fulfilled the office should cease.

Messrs. Lumsden and Malet concur. On 12th December, 1855, the Court of Directors approve. The Draft Act submitted by the Remembrancer on 8th April, 1856, provides a fine of Rs. 500 or a year's imprisonment or both for any person wilfully concealing records. Any person known to be in possession of such, and not authorized to hold them shall be held *prima facie* guilty. Government shall in such cases have power to confiscate the office, but any co-sharer who may give information shall retain his share. No account received after the date of the

proclamation declaring the officers appointed to receive records, shall be admissible as evidence, unless produced by an officer. Any person who shall without permission disclose or copy any record shall be fined R. 100 or 3 months' imprisonment. The Draft on 28th April, 1856, was submitted to the Court of Directors.

MR. DAVID SMITH'S REPORT ON THE COAL AND IRON DISTRICTS OF BENGAL.

In a letter to Col. Baker, Secretary to Government in the Public Works Department, July 2nd, 1856, Mr. Smith reports that the coal of the Damoodah Valley, though inferior to the English and Welsh coals, is a reliable fuel for the reduction of ores in blast furnaces with the aid of a hot blast. The "Lange" of the Ranceeunge seam yields an imperfect coke; but the waste in coking is so great that it would be better to use the raw coal. The Ranceeunge seam is of very peculiar quality. It is composed of bituminous coal, of free burning or steam-coal, and anthracite, in alternating thin layers. Still it ignites readily, burns freely, gives out great heat, and in a furnace with the blast heated to 600 Fht. would turn out from the ores of the neighbourhood 65 or 70 tons weekly of Iron, well suited for Railway bars and other ordinary purposes. A peculiar Iron ore is freely distributed over the surface of the coal field. It is known as ferruginous gravel, is argillaceous, and is identical with the ore worked at Boulogne and other parts of France. It is now used in making roads, for which it forms an admirable metalling, but it might be more advantageously used with the other clay ores of the neighbourhood in the manufacture of Iron.

THE BARROOL IRON ORE FIELD which Mr. Smith proceeds to describe in detail is bounded on the North by Chooroolia, on the East by Jamsol, on the West and South by Sottoor, the extent from North to South being 4 and from East to West 5 miles. The surface of the tract is thickly strewn with lumps of Iron ore. A section of the iron bearing strata is exposed at less than half a mile west of the village of Barrool. A trial shaft sunk near Barrooll gave at a depth of 52 feet 38 inches of clay Iron ore of very superior quality, and 52 inches of carboniferous ore. This latter is of the sort known in Great Britain as "black band" but it is very inferior to the Scotch black band. In its raw state it would yield but from 20 to 23 per cent. of Iron, but if previously calcined would probably yield

40 per cent. The black band iron has the advantage of being easily worked, and when mixed with the clay ores of greatly facilitating the process of smelting. Assuming, which there is every reason to do, that all these beds extend throughout the whole field under notice, and making every allowance for blank spaces and wastage in working, Mr. Smith estimates the contents of the field at 4000 tons of clay ore, and 6000 tons of black band per acre, in all 10,000 tons per acre and 64,00,000 tons per square mile. Supposing that every four tons of the ore produced but one ton of pig iron, the field would yield 16,00,000 tons of pig iron per acre, equal to the make of eight furnaces at 70 tons each per week for 59 years. Owing to the cheapness of labour and the facilities for mining operations, the cost of the Barrool ore would not exceed 5 per ton whereas the ores of Staffordshire do not cost less than 10, and the average of Wales is 13. The undulations of the surface also present opportunities for mining by "patch work" which is much readier and cheaper than the system of pits and adits. It is also probable that a deeper shaft would give more beds, but enough has been done to show the existence of ore in abundance, and the further development of the field may be left to private enterprise.

THE TALDANGA FIELD announces itself between the 146th and 148th mile stones on the Grand Trunk Road, in sections exposed by the water-courses running southerly to the Barakar. The field extends two miles from North to South and one from East to West. Four beds of very good clay iron ore are here exposed. A trial shaft was begun, but from accidental causes not proceeded with, so that further information is required. The beds are worked by native smelters.

THE RAJARAH COAL FIELD near Palamow is worked by the Bengal Coal Company. The coal is different from the Damoodah coal. It leaves a red ash and does not burn so freely. Like the Damoodah coal it will not coke well. The dimensions of the field from East to West are $2\frac{1}{2}$ miles. Those from North to South are not stated. It has hitherto been worked by "patch" on the outcrop, but the Company is sinking a fine shaft in the centre of the field. Near the junction of the Mamit river with the Coyle is seen the outcrop of a vein of inferior coal six feet thick with a sand-stone covering. The coal measures extend thence three miles in a southerly direction beyond the Mamit. Other beds of very inferior quality are found in the neighbourhood. The bad quality of the coal in this neighbourhood and its distance from a market preclude the expectation that it can be profitably worked.

Mr. Smith proceeds to give his opinion as to the prospects of Iron manufacture in India. He holds that European superin-

tendence on a large scale is indispensable at the outset, but has no doubt that if the natives had the strength they would quickly acquire the skill necessary for all the operations in the manufacture of iron. But to this end they must entirely change their habits, and must adopt the dress and diet of Europeans. The districts of Raneegunge and Barrool supply both coal and iron ore in abundance. But the want of a flux is a serious obstacle. Kunker lime can only be had in small quantities, and limestone would have to be imported. The difficulty would be diminished by the use of the scorise of the blast furnace which possess high fluxing properties, and are only not used in England because limestone is so abundant. Mr. Smith thinks that the iron made at Barrool would be superior to that used in England for rails, and that rails could be turned out at £5-10 per ton ; English rails costing at present when landed at Calcutta £9 per ton. But supposing the price of English rails to fall to £6 per ton, there would still be a large profit on Indian rails. He is confident therefore that iron manufacture in the Barrool field would pay. But this question will shortly receive a practical solution as the Bengal Coal Company is erecting a blast furnace at Raneegunge.

THE JUBBULPORE SCHOOL OF INDUSTRY.

India Selections, No. XV.

On the 23rd May, 1854, Capt. G. R. Edwards, Officiating General Superintendent for Suppression of Thuggee and Dacoity acknowledges an order to furnish a Report, laments his want of personal knowledge, and states his intention to quote Col. Sleeman up to 1848. In 1837, Mr. Shore proposed to establish the approvers in villages. Col. Sleeman objected as the Thugs would either follow or teach the trade of murder. A manufactory struck him as the better plan. In the same year Capt. Brown (apparently of the Thuggee Department) succeeded in establishing a factory for lac dye, blankets, cloth work, and cotton work, generally. The approvers disliked the plan, and kept their children back. As soon as they found they were to have a share in the profits this prejudice relaxed. Orders were issued to enforce obedience, Rs. 1,000 were advanced, and Mr. Williams, a Patrol in the Delhi Customs, was appointed to superintend on Rs. 150 a month. He gave up a higher salary. A cottage was built for him at Jubbulpore in a garden of

Col. Sleeman's. The wives and families of the approvers were located in a small village near. It was known that the approvers would not attempt to escape, for any one doing so was left to the law, and hunted down by the relatives of the Thugs they had betrayed. The profits were at first very small, but persons from Mirzapore taught them to make carpets, and from Futtehgurh to make tents. Both found a ready sale. The boys made carpets, the men the tents, the women the thread for canvass. In 1842, Major Ramsay became Superintendent, and in 1845, Capt. J. Sleeman, Mr. Williams remaining Overseer. By 1848, the Thugs had become ashamed of their past lives. Their sons were well dressed, well taught, and acted in a theatre, a drama translated into the vernacular. The Forty Thieves was the drama. In 1847, Rs. 4,953, was paid to the Thugs for work done, and Rs. 2,396 to their wives. The sons also entered into service. There were 543 Thugs and their sons manufacturing, and 307 performing different duties, guards, brickmakers, cleansers, &c. They made 131 tents, 5324 yards of Kidderminster, 46 woollen carpets, cloths, towels, &c. realizing Rs. 35,230-13-8. The young lads obtained permission to set up independent establishments. The position of the factory had been changed from a debt of Rs. 1,207-9-2 to a balance in favour of Rs. 25,282-14-1. Col. Sleeman recommended the importation of a carpet-maker from Kidderminster.

From 1848 to 1851, the History of the Institution is not supplied. It was a period of increasing prosperity. On 22nd January, the Superintendent submitted to the Governor General the following statement of accounts for the half year. There were 50 boys, sons of approvers, maintaining themselves independent of the Institution; some hundreds more were preparing bricks for a native. The operations of 1851, left a profit of Rs. 6,730-6-5, and the demand for Jubbulpore articles was general throughout India. In April, 1851, 30 sons of approvers were sent to Meerut to form a factory there under Major Graham. The experiment succeeded. At this time 120 boys remaining in the factory learning trades, while 40 more acted as pedlars for the School. The Mooltan Bunjarah dacoits became good rope and leather-workers. The Berriahs make weavers, but the Bhuddaks will not work, preferring day labour or even begging. Mr. Williams has a share in the lac dye factory, but his private pursuits do not interfere with his official task. In 1853, a Brussels carpet-maker and loom were imported. In 1853, the profits amounted to Rs. 8,600-6-6½. The number of articles manufactured has been reduced being principally tents, carpets and towelling of every description. All subsidiary work, carpentry, smith work, stamping, dyeing, and printing is done in the factory. In May, 1854, the factory contained 533 approvers,

268 of their sons, 231 prisoners, 16 teachers (freemen) or 1088 in all. Of these are employed on

Tents, ...	473
Table linen, ...	40
Carpets, (woollen,).....	159
Carpets, (Kidderminster), ...	13
Unprofitable labour, ...	363

Total,.....1088

The funds of the School had grown thus:—

	1815.	1854.
Liabilities,.... Rs.	4,763	Rs. 1,210
Assets, ...	13,137	61,043
Balance, ...	8,374	62,833
Year's profit,.....	4,049	8,600

SURVEY OF CENTRAL DISTRICT OF PEGU.

India Selections, No. XVI.

"THE central district of the Pegu Survey is that portion of the Valley of the Irrawaddy embraced between the parallels of the latitudes of Akontoung to the North and Henzada to the South. Its average length and breadth are 60 and 75 miles, and the approximate area 4,500 square miles, which is divided into two nearly equal parts by the Irrawaddy."

The district is rugged, subsiding into a flat in the central part of the river. Innumerable nullahs join in ten streams, pouring the drainage of the western half of the district into the Irrawaddy and Bassein Rivers. The nullahs have high banks, and tortuous courses, are dry in the hot season, and torrents in the rains. They are navigable for a few miles in the S. W. Monsoons. Even the Kwengouk, Taun, Mamya, Alon, Sanda, Pado, and Khawa rise in the Arracan mountains. The Simpon and Nouk-mee near the Thoo Lake and Poutine in the Akontong hills.

Length.

Kwengouk, ...	30
Taun, ...	25
Opho, ...	60
Simpon. }	
Noukmee, }	20
Mamya, ...	30

Debouchure.

Bassein river.
Kwengouk near Kwengouk.
Bassein near Soongou.
{ Opho.
{ Irrawaddy.
Thoo Lake.

	<i>Length.</i>	<i>Direction.</i>	<i>Debouchure.</i>
Alon, ..	25	S. E. }	
Sanda, ..	30	N. E. }	
Pado, ...	40	N. E. }	
Poutine, ...	10	E.	Irrawaddy.
Khawa, ...	22	N. E.	Irrawaddy.

The Bassein branch strikes off from the Irrawaddy about 9 miles above Henzada. The entrance 300 yards wide is choked by a bank.

The Arracan Mountains run North and South forming a boundary between Arracan and Pegu. The greatest elevation within the limits is 4000 feet above sea level. The hills, summits excepted, are covered with forest. The only pass is at Layma west of Kangaen. It can be used by mounted passengers, and is traversed by considerable traffic. There are improvable springs. There are villages all over the district, usually scattered about the streams. The inhabitants cultivate rice. Those of the marshes are engaged in fishing. The hill villages are usually occupied by Khins and Karens, who grow rice or vegetables. The Burmese occupy the towns, work the fisheries, grow tobacco, and are in possession of all trade. The country is intersected in every direction with parallel lines of ruts doing duty for roads. They are only impassable in the S. W. Monsoon when water carriage is perfect. There are occasionally wooden bridges, and brick footpaths near towns of importance.

The east half of the district contains six townships; Henzada, Kwengouk, Opho, Kawoung, Myaoung, Kangoen.

	<i>Houses.</i>	<i>Remarks.</i>
Henzada, ..	1700	Military station.
Kwengouk, ..	30	
Opho,		Extensive.
Kawoung, ..	200	On the river.
Myaoung, ..	1000	Head Quarters, Pegu, N.E.
Kangoen, ..	700	
Saitha, .. }	350	On Irrawaddy.
Thombo, .. }		
Phayay, ..	250	On Bassein.

The rice cultivation commences in June, after rain has fallen. The water is retained by little dykes, and seed sown broad cast. The harvest, is in Decr. or Jany. The tobacco is cultivated on the churs. The plough drawn by oxen is the only agricultural implement. The soil is sometimes laterite clay, but rocks occur only in the hills. Limestone exists North of Thombo.

The trade is confined to rice, napee, wood oil, bamboos, tobacco, and cattle. Petroleum is imported, and a little indigo manu-

factured near Henzada from the wild plant. Large forests of the wood oil tree exist, and the country can meet 10 times the demand. The oil is used for torches and making baskets water proof.

The bamboo is abundant. Cattle are brought for the Rangoon market. Numbers go down the river on the bamboo rafts. The timber trade does not thrive. The teak is very scarce, and the Pingodo, a hard, heavy, lasting wood is used instead. It resists insects. The people live always in bamboo houses, and even Pagodas are only substantial near the towns. Buddhism is the religion of the country; well digging and orchard planting are commendable practices in the eyes of the people. The inhabitants have no peculiar customs apart from other Peguans. There is a want of population, the district being covered with uninhabited forest and elephant grass. The Burmese have an antipathy to exertion.

REPORT ON THE NORTHERN DISTRICT OF THE PEGU SURVEY.

"THE Northern or Third District of the Pegu Survey consists of that portion of the Valley of the Irrawaddy which lies between the boundary line marked by Major Allan in the North, and an imaginary line drawn due East and West through the latitude of Akouktoung to the South. It is bounded on the East by the Yoma Range, which separates the Valleys of the Sitang and Irrawaddy Rivers and on the West by the Arracan Mountains, comprising an area of about (90 × 66) 6000 square miles, which is divided into two nearly equal parts by the Irrawaddy on the left bank."

In this district the spurs of the Arracan Mountains run down to the Irrawaddy, sometimes losing their old character. They are sometimes hills of 200 or 300 feet in height, sometimes only undulations. One spur runs due East, but the majority South. The main spurs consist of high peaks connected by saddles of a few feet in width. They are covered with tree and bamboo jungle, and are very precipitous. The drainage is effected by small nullahs which midway form larger channels, and these again 4 streams, the Matoong, Maday, Shooetana, and Shelayding. In the monsoon only boats drawing 2 or 3 feet of water can proceed up the Matoong to Mendoong. In the other nullahs the boats can only ascend 8 or 10 miles. The Matoong rises in the Arracan Mountains and running 120 miles South East discharges itself into the Irrawaddy; one

bank is precipitous the other shelving. The breadth varies from 70 to 120 yards. The Mudday rises in the same Mountains, flows 40 miles, and empties itself into the Irrawaddy. It is navigable in the rains for 12 miles. The banks are precipitous, and it varies from 30 to 70 feet in width. Beyond Kyoupoo it is a mountain torrent. The Shooetena is about 150 yards broad and 4 feet deep. Five miles from the Irrawaddy it branches into the Kyenpyoo and Boiyo. The former rises in the Arracan Mountain, and runs South East 80 miles to Nyoungeedouk. It is about 20 to 40 yards in breadth. The Boiyo runs 30 miles South East. The Theree rises in the Arracan Mountains and runs 40 miles E. S. E. to Kyoungoo, then runs South till it falls into the Boiyo. All these streams are mountain torrents with pebbly or rocky bottoms, high banks, and currents of great velocity. "The Theloyding rises in the Arracan Mountains and runs into the Irrawaddy in an Easterly direction, about 6 miles North of Akouktoung." The Mingday rises in a range 10 miles West of Thyatmo, runs 35 miles and falls into the Irrawaddy south of Thyatmo. Its banks are low and its bed about 15 or 20 yards in width. In dry weather water is obtainable by digging a few inches below the bed.

The principal valleys are the Matoong, Punnee, Boiyo, Kyenpyoo, Theree, and Theloyding. The Matoong valley is the most important. Two miles above the mouth of the river we come on a cultivated tract $2\frac{1}{2}$ miles broad, with mango, tamarind, or palmyra trees to mark the villages. On the left bank the open ground continues to the junction of the Punnee and Matoong. From Kanlay to Mendoong it is from 3 to $1\frac{1}{2}$ miles in width and this is well inhabited. Water is raised from the river by a water wheel, and the ground yields 3 and sometimes 4 rice crops a year. Chillies, brinjal, tobacco, onions, and maize are raised on the low ground.

"Looking from the hill on which Mendoong is situated in a Westerly direction, the valley seems to open a little for a few miles, and there is a large tract of cultivation to its North and West."

This valley is exceedingly picturesque. In the valley of the Punnee there is little cultivation. Spurs covered with jungle run down to the bank, but every level space has been taken advantage of. In part of the valley the villages are unusually large.

"In the valley of the Mudday, from the mouth of that nullah to a distance of about 8 miles to Alayyua, there is a large tract of open ground, varying from $2\frac{1}{2}$ to 5 miles in width."

But a portion of this is cultivated, though more has been. In the valley of the Shooetena and Boiyo there is a large tract partially cultivated. It is however neither fertile nor populous. The

villages on the bank have been deserted. In the valley of the Kyoupoo there is a cultivated tract, and some ruined villages. The same may be said of Theloyding. Only 2 villages out of 30 now remain. The roads are mere tracks, the Burmese going a circuit to avoid a fallen tree. There are some small bridges. There are a few Kayins, a simple mountain race, in the district. They have no idea of future reward or punishment, and deny the existence of sin. They burn their dead, but collect and bury their ashes. Their God resides on Mount Guowa. The females tattoo their faces. The district is chiefly occupied by Burmese who resemble Burmese everywhere else. The population is small and increases slowly. The Burmese have large families, but the children die rapidly of small-pox and other diseases. Their cultivation is as usual, but they cultivate a small and highly prized rice in a peculiar way. The jungle is cut in February or March, and burnt in May. The charcoal is the manure, but only one crop can thus be obtained in 25 years. The only implement of labour is a rude plough. At Thyatmo the exports are rice, paddy, betel-nut, napee ; bamboo and wood oil are sent down from the North. Lime and cutch may one day be sent down. The imports are silk, earth oil, lacquered ware, lead, copper and cutch.

In the west district there is a thermometrical difference of 40 or 50 degrees in the temperature at dawn and midday. In the morning there is fog which clears away about 9 A. M. when the thermometer rises 45 degrees at once. The Towns have usually one good street 60 feet broad with lanes leading into it. They are situated on the river or a large nullah, and contain several phoongee houses. There is no drainage except at Prome and Thyatmo. The villages are irregular, each person having his own plot of ground. The houses are raised some feet from the ground, and made of timber, jungle trees being used for frame work, and bamboo for floors. The walls are of bamboo mats. The phoongee houses are built of teak frame floors, and partitions ; the roof is made of flat tiles or leaves. On the body of the building are five or six roofs, one above another, crowned with a gilt ball or umbrella. The cornices, eaves, and angles are ornamented with figures. The largest Capt. Oakes had seen covered an area of 10,402 square feet.

"The principal wild animals and birds met with in the Northern district are the elephant, the tiger, the bear, the deer, the hog, the hare, the porcupine, and monkeys in great abundance ; the crane, the crow, the wild duck, the hawk, the jungle fowl, the kite, the minah, the paddy bird, the parroquet, the partridge, the peacock, the pigeon, the pheasant, the quail, the snipe, the sparrow and the teal."

In the Appendix Captain Oakes gives a table of the trees of the district, and describes the waterwheel.

<i>Burmese name.</i>	<i>Botanical name.</i>	<i>Uses.</i>
Myocahan,	Dalbergia,	Like lancewood.
Sha,	Acacia catechu,	The cutch bearing tree.
Lepan,	_____	{ The pod contains silk cotton.
Deedo,	_____	Idem.
Gway B,	_____	A fruit like a plum.
Gyo B,	_____	Extremely hard wood.
Peemal,	_____	{ A large timber tree useful for building.
Thingan,	Hopea Odorata,	{ For canoes and building.
Thesing,	_____	Like a chestnut.
Shonk,	Citrus bergamia,	Large lime.
Kookko,	Acacia,	Timber tree.
Jug B,	{ Dipterocarpus grandiflora,	{ Wood oil tree, the tree is tapped.
Teethee,	_____	Chinese date.
Thabya,	_____	{ Its bark used as a mordant.
Yee B,	_____	A plum.
Tree B,	Zezyphus jujube,	{ Jujube lozenges are made from it.
Toukaha,	Vitex arborea,	Small timber.
Padouk,	_____	Valuable timber.
Teak,	_____	Teak.

REPORT ON THE FLAX OPERATIONS OF 1855 IN THE PUNJAB.

India Selections, No. XV.

On 29th November, 1855, Mr. Cope reports on certain measures suggested by the Agri-horticultural Society of the Punjab, and sanctioned by Government for the improvement of linseed. The Government allotted Rs. 800 for an experiment on 40 beegahs of ground near the Society's Garden. The ground was not very well suited to the purpose. The seed was mixed with rape, and other seed, which involved expensive weeding. The crop however might have been a good one, when it was destroyed in April by a hailstorm. Only the small plot sown with English seed was saved. The Society then printed papers offering rewards and affording instructions for the cultivation. They

had an effect. The breadth of land under this cultivation which had been 3455 acres, was in 1854 increased to 19,039 acres. It was supposed that in the latter season 1,46,538 maunds of seed were produced throughout the Punjab. The returns were not so profitable as they might have been. The Zemindars cultivated carelessly, looked rather to breadth of land than to produce, and the profit of a rising market was absorbed by the dealers. Government offered to purchase the crop. A shed was erected for storing. M. Laurenz Steiner, a German, acquainted with the cultivation, was appointed Superintendent, a price was fixed with the growers, and orders were sent to the District officers to store. The price was to be in Hoshearpore 27 seers to the rupee, in Guzerat 27 seers, and everywhere else 34 seers. The public were kept informed in Calcutta, Bombay, and Kurrachee, and instruments for stripping the seed from the plant were made.

The cultivators however found a more profitable market, and only 11,301 maunds out of 1,46,538 produced reached Government. The seed sent to Kurrachee was sold at Rs. 4-6 per maund; it cost Government in purchase, carriage, freight, and commission Rs. 2-12. The average profit will be Rs. 1-10 per maund, or 59 per cent. on outlay. The linseed delivered at Lahore amounted to 4840 maunds, the whole of which was sold to a Mooltan firm for Rs. 9,410. The Financial Commissioner immediately published a notice embodying these results. The people believe Rs. 2 per maund will yield them a fair profit. Should Government be of opinion that the system should be kept up, the Society recommends that a price of Re. 1 for 20 seers should be paid on delivery at Lahore, and the Society be authorized to import 2 of Dray's winnowing and blowing machines, and two of Robinson's flax seeding machines.

It was thought that the indigenous flax plant was incapable of producing fibre. The first attempt to improve the fibre and lengthen the stem failed, from neglect of instructions. The arrangements for steeping were completed, and heckles set up. They were not however, required, flax being taken to market in England scutched, and heckled in great factories. The outturn of 2365 maunds amounted to only 100 maunds,—the straw being green and dry,—which has been sold at Rs. 8 per maund in Calcutta. The average return is not very unfavourable in quantity, according to English experience.

It is however from English seed that the best results have been obtained. The Society planted half a beegah with this seed. The country straw yielded only 2 maunds per beegah. The half beegah of English flax yielded 3 maunds 35 seers far superior in length and quality. Flax is worth £40 per ton in London, or Rs. 10 in Lahore, which at 3 maunds per beegah

gives Rs. 30 per beegah besides seed. It is therefore desirable to secure English seed for 1856-57. The Society had recommended the purchase of 5 tons of English seed. The Court of Directors shipped it. Only 2900 lbs. have reached the Society. Of this 600 lbs. was damaged. The remainder was distributed, but the seed was all bad. The English seed grown at Lahore therefore alone was used, and the Society recommended the purchase of 50 tons of linseed by themselves direct. The rewards offered to Zemindars for cultivation were not claimed, the conditions not having been attended to. Some persons and villages have however sowed largely, and incurred cash losses which should be liberally considered. The total amounts to Rs. 1,490. Everything connected with the operation is superintended by M. Laurenz Steiner, who is most efficient. It is recommended that he receive an addition of Rs. 50 to his stipend, and that his horse allowance of Re. 1 a day be continued. Also that he be authorized to keep a small establishment of blacksmiths. In the course of these experiments the question of fibres in general has forced itself on the Society. The sunokra (*hibiscus cannabinus*) and sun (*crotolaria juncia*) are grown, also hemp of wonderful strength, and a fibre producing nettle are indigenous. In 1853, the Society received a Chinese fibre plant a species of *Corchorus*. The fibre seemed strong, 12 square yards were sown in June, 1855, the plant grew luxuriantly, and the straw is now steeping. The Bengal jute is also cultivated. Half a beegah of sun has been steeped, and a quantity of sunokra. Hemp and nettle are on their way from Kangra and samples of all will be experimented on. Larger experiments are however required. A maund of goods can now be conveyed from Lahore to Kurrachee for Annas 13. It was formerly Re. 1-8 to Rs. 2. A School of Industry is to be found at Lahore where gunny will be manufactured. For this the cultivation of jute, is necessary. The Society recommend that the Choogean and Mamood Bootee rukhs be devoted to cultivation of flax, sun, jute, sunokra, and mulberries. The Rukhs are let for thatching grass. The leases expire on 1st May, 1856. Mr. Steiner has constructed an underground plough which will clear away the roots, and the cultivation of the rains of 1856 will only cost Rs. 4 per beegah, 3 or 400 beegahs might be taken up at once. The Society consider the suggestion important. The demand for fibre is great. The cost would be only Rs. 3,000, the receipts at least Rs. 4,000. The total expenditure on flax and linseed operations has been Rs. 35,812. Receipts Rs. 39,209. Rs. 5,778 have been spent in plant, and the available portion of this added to actual receipts brings the profits to Rs. 6,810. Samples have been forwarded to the Court of Directors. In conclusion the Society expresses its

sense of the liberal and enlightened spirit in which its suggestions have been received.

SALT REPORT.

ON 24th May, 1856, Mr. G. Plowden reports to the Government of India on the Salt Monopoly.

The Report was suggested by the House of Commons at the close of the Session of 1853. The House carried a Clause allowing till 1st May, 1856, to change the Salt Monopoly into an excise. The Lords struck out the Clause, but the Court of Directors ordered an enquiry. Mr. Plowden was on 16th February, 1853, directed to enter on the enquiry at once. He visited Bombay and Madras, the Hidgellœ and Tumlook Agencies, Narayunpore and Goordah in the Sunderbunds. Mr. Plowden understood his primary duty to be to ascertain the practicability of establishing an excise. He trusted for data chiefly to the information already in existence.

Mr. Plowden begins by a History of the Salt Revenue. In Bombay it was till 1837, only one of the miscellaneous items of revenue. In the previous year the net revenue was only Rs. 2,08,532, but this amount does not represent the entire proceeds of the complicated system then in force. In 1837, an excise duty of 8 Annas a maund was laid on salt in compensation for the transit duties then abolished, and 8 annas a maund on sea-borne salt. Under Act XXVII. of 1837 any one could manufacture salt. He must however give notice of his intention and describe his works, and allow the Revenue officers free access to them. Salt-fish were subsequently exempted from duty. The salt duty thus imposed produced to Government as compared with the transit duties a loss of Rs. 2,51,607 a year, the transit revenue having been 16,60,879, and the Salt Revenue, on an average of 6 years from 1838-39 to 1843-44, only 14,09,272. In 1844, the Town duties were abolished, and the tax on salt raised to 1 Rupee per maund. The rate was soon after reduced, under orders from home, to 12 Annas. Owing to delays the Town duties were not abandoned till after the salt tax had been increased. There was therefore a serious riot at Surat. The revenue relinquished was Rs. 10,88,501. The revenue gained was Rs. 7,31,720 a year. In 1850, Act No. XXXVI. was passed as a Protective Act. It provided that the duty on salt passing out or in to foreign territories should be 12 Annas a maund. Also that any one passing salt by land or sea contrary to any Salt Act, should be punishable with imprisonment not exceeding 3 months, or a fine not exceeding Rs. 500, or both, and that the salt, the vessel, or the package used should be confiscated, or made redeemable by a fine.

Informers might be rewarded. No new salt works could be established, or old works re-opened without the permission of Government, under penalty of fine or imprisonment. Government might suppress any work not producing on a 3 years average, 5000 maunds a year.

Mr. Plowden describes the existing system. The salt is produced entirely by solar evaporation. The average quantity is 46,29,946 maunds. The salts are of two kinds. "The manufacture of sea-salt is carried on in the Island of Bombay, and more or less in every district on the seaboard of the Presidency, from Rairee on the Goa Frontier Southward to the shores of the Gulf of Cambay in a Northerly direction. The inland salt manufacture is met with almost exclusively on the Eastern border of the saline desert known as the Little Runn of Cutch, but small quantities of very impure salt are also produced in the Deccan by washing saline earths."

Mr. Plowden describes the process of manufacture. The inland salt, obtained by digging pits in the desert called the Runn of Cutch, is the better of the two. The works all over the Presidency either belong to Government, or to owners whose lands were not reclaimed by Government, or to owners whose lands belong exclusively to themselves. Almost every work, however, has been constructed under a separate and special bargain with Government, as original owner of the soil. In Government works the produce theoretically belongs to Government. It is usual, however, to lease it out, half being given to the middleman. In some cases the labourers receive from a half to a third of the produce as wages, the remainder constituting the Revenue. The holders of lands not reclaimed by Government usually pay a rent in one form or another. The free landholders pay no rent. The manufacturers are pretty much on a level with other agriculturists, and the labour is not unhealthy. The duty is levied at the pans before any salt can be removed. In certain cases however the exporter is not required to pay till his cargo has arrived, and if it is lost on the way Government allows him to remove an equal quantity free of duty. All salt imported into the Presidency pays 12 annas a maund. The salt excise of Bombay (Town) was until 1854 a department under the Collector of Sea Customs. The salt excise of the Presidency is a department under the Collector of Continental Customs. All customs are now under the control of one Commissioner. Mr. Plowden describes the establishment. "Over each large Salt Work, or over several small detached Works, a double Establishment, suited in strength to the extent of the Works, is maintained, superintended in each Talooka or District by Officers termed Inner and Outer Darogahs. The Establishment of the Inner Darogah is charged with watching

the production and store, with the care and custody of the salt produced and stored, and with the delivery of the same upon written orders from the Officers by whom the duty is collected. The Establishment under the Outer Darogah is the Preventive Establishment, stationed at Chowkies, established under the provisions of Section 7, Act XXVII. of 1837, in the immediate neighbourhood of each Salt Work (Agur) or group of Salt Works (Suza,) the distance in each case being regulated by local circumstances, for the purpose of preventing any salt from being removed from the pans, except the quantities passed by the orders of the Inner Establishment."

"Parties desiring to purchase salt at the pans must, in the first instance, address to the Inner Darogah, or Head Native Officer of the Manufacturing Department, a written application, stating the quantity of salt they require, the Agurs or Works from which they propose to take it, and its destination. Upon this, the necessary preliminaries (whether payment of Excise, or execution of a bond or other document) having been fulfilled, the permit for delivery of salt is granted, and the amount of duty brought to account in the *Khird*, or 'Cash Journal.'"

The sale price of salt at different works ranges from nine pies to two annas per maund. The permit from the Inner Darogah under which salt is delivered is only nominally signed by the Collector. He signs blank permits. The chowkees command all access to the pans by land or water. The total establishment charges of the department, including frontier charges, are Rs. 2,07,060 per annum.

"According to a statement prepared, the total deliveries of salt from the Works of the Bombay Presidency and those in Cambay, in the year 1852-53, being the latest year for which an account has been obtained, amounted to 41,50,553 Indian maunds, of which 7,09,059 maunds were delivered from the pans in the Island of Bombay, and 34,41,494 maunds from the Continental Works: of the total deliveries, 28,56,801 maunds were taken by Sea and Land for consumption in the interior, which includes the whole home consumption of the Presidency, on payment of the full Excise of 12 annas per maund, excepting the portion produced at Works in Cambay, on which an Excise of only 5 annas 11½ pie was received, viz.,—from the pans of the Island of Bombay, 15,976 maunds, and from the Works on the Continent, 28,40,825 maunds. The Exports by Sea to Calcutta, paying the full Excise of 12 annas per maund, amount to 4,00,018 maunds, of which 2,67,433 maunds were exported from the Island of Bombay, and 1,32,585 maunds from the Continent. The Exports by Sea to British Ports under the Madras Presidency, paying only a charge of 3 pies or a quarter of an anna per maund,

to cover expenses, amounted to 4,34,576 maunds, viz., from the Island of Bombay 3,20,790 maunds, and from the Continent 1,13,786 maunds. The Exports to Foreign Ports under the Madras Presidency, paying a duty of only one anna per maund, amounted to 4,53,698 maunds, of which 99,400 maunds were exported from the Island of Bombay, and 3,54,298 maunds from the Continent. The deliveries for free export to Ports in the Straits of Malacca, and to other places beyond the Continent of India, amounted to only 5,460 maunds, the whole from Works in the Island of Bombay. The total deliveries for Export by Sea beyond the Presidency thus amounted to 12,93,752 maunds, viz., 6,93,088 maunds from the Island of Bombay, and 6,00,669 maunds from the Continent."

The Gross Revenue for 1852-53, ...	Rs. 24,62,262
Charges, ...	" 2,03,995

Net Revenue, ... Rs. 22,58,267

The revenue is equal to a tax of $9\frac{1}{4}$ annas a maund on the total deliveries, and the charges equal to $8\frac{1}{4}$ per cent. on collections.

It is Mr. Plowden's opinion that the scheme of Salt Administration in the Bombay Presidency is creditable to the fairness and liberality of Government, and his only regret is it was not introduced earlier. He has been unable to discover the reasons which caused Government to adopt the Excise in preference to a monopoly, but considers the system satisfactory, and is "unable to perceive why a larger or more expensive force should be required to watch production and protect and collect the Revenue when individuals manufacture freely for themselves, than when they manufacture exclusively for the Government; or what facilities for illicit practices exist in the one case which do not equally exist in the other; or why, the Agency being necessarily of the same character in both cases, it should be less trustworthy or less efficient in the one case than in the other."

With reference to the results he finds that in Bombay Island the consumption in 1852-53 was only $8\frac{1}{4}$ lbs. a head, a low rate. There has been a steady decline in the quantity of salt delivered. The population has increased. It is presumable therefore that the demand is met by an illicit supply. The causes of this evil Mr. Plowden finds in the absence till 1850 of a stringent Protective Act, and in lax and incapable superintendence. Moreover the works are too detached, small works are not suppressed, and there are no means of securing an accurate account of the stock in hand at a given time and in a given place. This might be remedied by the introduction of the system in force in Madras, where salt is always stocked in heaps of 1200 maunds. The salt is weighed for carriage by land, but not for export by sea. The

system of measurement rather than of weight is partially adopted, and Mr. Plowden conceives it might be made universal, were the practice of reweighing ten per cent. of the salt carried inland abolished. That practice is unnecessary. M. Plowden discusses the propriety of remodelling the establishments, and recommends plans for disposing of the Government Salt Works. He would also abolish all duty on salt exported to ports in India, levying it only at ports of arrival. Finally Mr. Plowden does not consider that the Protective Laws are at present unduly severe. The decision is given usually by the Assistant Commissioner in a summary way.

Mr. Plowden passes on to the rate of duty. At present the Bombay rate of duty is positively much lower than the Bengal rate. Comparatively to the cost of produce it is much higher. Thus the cost in Bombay is $1\frac{1}{2}$ anna a maund. The duty therefore is 1000 per cent. In Bengal the cost is eight annas a maund, and the duty 500 per cent. The two points to be settled are: Is the tax oppressive? Can it be reduced with benefit to the Revenue? The Bombay officers are of opinion that the increase of the tax to twelve annas diminished the consumption among the poorer classes. It is impossible to decide on the quantity consumed. We know nothing even of the population. The price per pound to the consumers however is just one farthing, and each man should have 12 lbs. a year. That would cost him three pence* "or one and a half anna, and this cost, assuming the average wages of agricultural labour at three Rupees per mensem, which is equal to 36 Rupees of 72 shillings per annum, would amount to the 288th part of his yearly earnings, or a tax upon his income of between a quarter and a half per cent., supposing he had only himself to provide for."

12 lbs. however is too much. 7 lbs. is allowed in the Jails. 8 lbs. may be taken as a sufficient though stinted supply "supposing a family of five persons, adults and children, to consume, at the rate of 8 lbs. each all round, 40 lbs. of salt per annum, and to earn between them only three rupees per mensem, and to pay the highest of the prices above assumed for their salt, viz., one Rupee per maund of 82.3 lbs., the cost of the whole supply, even in this extreme case, would amount to only the seventy-second part of the yearly earnings, or an income tax of scarcely more than $1\frac{1}{2}$ per cent."

The tax is therefore not oppressive. The Bombay officers think a reduction not required financially, and Mr. Plowden acquiesces, and passes on to Sindh salt. "In all parts of Sindh there are extensive tracts of barren and unculturable land, so

There is some mistake here. Three pence is equivalent to two annas, not one and a half.

impregnated with salt that it effloresces naturally on the surface, and in some of the Southern Districts of Lower Sindh the saline efflorescence is so abundant as to allow of the salt being gathered at once, without any artificial process, in large crystallized lumps called in Sindh *Loon Gundra* or *Gunder*."

It has been calculated that the Kotree field alone would supply, "1,48,41,51,430 tons, a quantity sufficient, at an annual allowance of 20 lbs. a head, to supply a population of 100 millions for one thousand six hundred and sixty-two years."

The salt, though there is a local prejudice against it, is good and hard, but from scarcity of labour and other causes the production costs from 2 to 3 annas a maund. The manufacturers usually retail the salt, carrying it on donkeys. There is no duty, and the supply does not exceed the demand. The salt, it is considered, could not compete with Bombay salt. It may possibly be exported to Calcutta as ballast with profit, but even this appears improbable.

Mr. Plowden recapitulates, and passes on to Madras salt. In 1805 the Salt Monopoly was established in Madras to meet the expense of the judicial establishments. The system then established has never been changed. The salt is sold to Government only at a fixed price. Government sells to the dealer at a fixed price, but beyond this it does not meddle. The dealer may sell where and how he pleases. Salt manufactured without permission is liable to confiscation. Salt in transitu unprotected by a Pass is also liable. Any person entering into a clandestine trade in salt is permanently excluded from the service of the Company. The sale price per garce or 120 maunds up to 1820 was Rs. 70. It had been raised once, but the smuggling increased so much that Government reduced it again. In that year it was raised to Rs. 105. In 1814, the Transit Duties were abolished, and the rate raised to 180 per garce, or Re. 1-8 per maund. The Court of Directors ordered a reduction, and on 1st April, 1844, the sale price was reduced to Rs. 120 per garce or Re. 1 a maund, which it has since retained. Marine salt is made exclusively by solar heat. The manufacturers make between January and July, and are compelled to leave the pans by a prescribed route. The salt is delivered to Government officers, and paid for without allowance for wastage as fast as it can be delivered. The salt is stored in great depots. The heaps are all weighed, and a purchaser who takes an entire heap obtains a discount of 5 per cent. The moment a heap is sold its produce is reported. If less than the quantity it was known to contain the Accountant and Superintendent must account for the deficiency or be dismissed. The average cost price is Rs. 8-11-5 per garce, the Revenue charges Rs. 3-6, and total cost 12-1-6 per garce.

The average cost to Government on the Coromandel Coast is 1 anna 10 pie per maund.

"The persons who make the salt are either the descendants of the original manufacturers, or have acquired their holdings by purchase, or are the descendants of purchasers. In Masulipatam the salt is made by hired labourers paid by the Government at the rate of 2 annas per diem, but with this exception, the salt manufacturers are in the possession of rights and privileges more or less valuable, according as their pans are situated in the Southern Districts and in Canara, or in the Northern Circars. Socially they are in the same position as the ordinary village ryots, but in general they are, or ought to be, in better circumstances, inasmuch as a Salt Pan is more valuable property than an ordinary grain land occupancy of the same extent. Their labour is entirely voluntary, and the climate of the Coast where they work is exceedingly healthy. Every proprietor of a Pan is registered; and when the Government extend the manufacture in any locality, the preference of the new Pans is usually offered to the villagers of that locality." The salt is very good. In 1852-53 the total produce was 52,67,110 maunds, and the total sales 48,32,937. In Canara the salt is brought from Bombay, and sold to Government at 32½ per garce, or adding Revenue charges, at 39½ Rs. per garce.

"In some districts salt spontaneously produced in marshy swamps is partially collected, stored, and sold in the same manner as manufactured salt, and partially destroyed. In other Districts salt so produced is altogether destroyed. This swamp salt might be collected in the Districts of Tanjore and Masulipatam more especially, to almost any extent, of fine quality and at a small charge, probably, on an average, for about four Rupees per garce of 120 maunds, or half an anna per maund." This spontaneous produce is usually destroyed as it affords facilities for smuggling. The mode of destruction is to tread it down with cattle. This earth-salt is wholesome. The Madras Government desires to send the salt to Bengal, but has usually charged too much. "In 1779 the Bengal Government imposed a Duty of Sicca Rupees 30 per 100 maunds on all imported Bay-salt, and shortly afterwards prohibited its importation altogether. In 1795 the Madras Government succeeded in procuring the partial removal of this embargo. On the establishment of the Monopoly by Regulation I. of 1805, it was provided by Section 19 of that Law that the usual annual supply of Coast salt required by the Bengal Government should be furnished to contractors, and to persons desirous of exporting it on permit, at the prices heretofore paid for salt so furnished and exported. In 1810 the annual supply for Bengal was fixed at 12 lakhs of maunds; in

1814 it was reduced to five lakhs. In subsequent years the supply was a matter of the greatest caprice, varying according to the success or failure of the manufacture in Bengal, the utmost possible quantity being required at one time, and the total suspension of importation being proposed at another. Of late years, the supply at any time required for the service of the Bengal Monopoly has been drawn on indents for Calcutta and Chittagong. The indents for Calcutta were discontinued in 1845, as the Government Warehouses then contained a very large stock of Madras salt, and it was expected that the demand would be supplied by private importations from the Coast, Bombay, and other quarters. For eight years no salt was exported to Calcutta on Government indent; but in the year 1853-54 the stocks in Bengal had run so low, owing to a sudden falling off in the importations of Foreign salt, that it became necessary to indent for a supply of five lakhs of maunds of Coast salt for that year, and of 10 lakhs of maunds for the following year 1854-55. The greatest difficulty was experienced in obtaining tonnage for these supplies, and it is doubtful if the indents have yet been completed; the last orders from Bengal were that every endeavour should be made to bring up the remainder of the Salt, whatever might be the rate of freight which the Government might have to pay for its carriage." The Madras Government has now abandoned the idea of making a profit on these exports. Salt for export on private account is sold by Government at cost price, but the quantity exported is insignificant. Foreign salt was not admitted into the Madras Presidency till 1818. It was not till 1853 that it was admitted at a duty of 12 annas a maund.

The result of the system now in operation may be thus stated :—

Total manufacture, 1852-53, ...	mds.	58,63,108
Total deliveries, ...	"	53,82,255
Total receipts, ...	Rs.	49,94,124
Cost price, ...	"	4,08,198
Charges, ...	"	2,36,161
Nett Revenue, ...	"	42,89,765

The nett profit is equal to $13\frac{1}{2}$ annas per maund. The salt costs Government on an average $1\frac{1}{2}$ anna per maund. The charges of management amount to $5\frac{1}{2}$ per cent. on the nett profits.

On the practicability of continuing the monopoly Mr. Plowden observes 1st, that the monopoly is not oppressive, good salt being sold at a very low price. The question therefore is to be considered solely in its revenue aspect. It is observable that in 1805 the Board of Revenue wished for an excise. The Government did not oppose. The monopoly was ordered from Calcutta. The Board now admit that an excise is possible. Mr. Plowden

analyses the opinions pro. and con. of various local officials, and proceeds to observe, that in his opinion a system identical in principle with that of Bombay might be readily adopted in Madras. In the following six pages Mr. Plowden discusses various objections, and suggests many detailed improvements in the Madras system not essential to the Report.

With reference to the rate of duty Mr. Plowden quotes the figures submitted to the Court of Directors in 1852. Their result was to show that the price now charged or Rs. 120 per garce had not diminished consumption. Mr. Plowden himself argues that it is not oppressive since each person can obtain 12 lbs. of salt at 4d., or the 140th part of the lowest income. Or "supposing, as in the Bombay case, a family of 5 persons, adults and children, to consume, at the rate of 8 lbs. each all round, 40 lbs. of salt per annum, and to earn between them only 3 Rupees per mensem, and to pay the outside average price for their salt, viz. Rupees 1-3 per maund, the cost of the whole supply, even in this extreme case, would amount to only the 60th part of the yearly earnings or an income tax of one and two-thirds per cent." Again "supposing that the whole quantity sold (51,94,713 maunds) were consumed within the limits of the Presidency, the annual consumption per head, taking the population at 2,23,01,697, as shown by the Census of 1850-51, would be a little over 9½ seers or 18½ lbs."

And therefore as it seems certain that 12 lbs. per head of this quantity is consumed within the Presidency, there seems no cause to believe that a reduction of price would stimulate consumption. But as the Bombay rate is 12 annas a maund, and the assessment of the same rate on earth-salt would prevent smuggling, and redeem any loss to the revenue, he would propose a reduction to that extent.

Bengal Salt. The system now in force in Bengal is regulated by the report of a Committee which in 1836 was ordered "to enquire into the supply of salt for British India," but which in fact restricted its report to the salt revenue system of the Lower Provinces of the Bengal Presidency."

Mr. Plowden recounts the history of the tax up to that point. Salt was taxed under Jaffier Ali. The privileged Europeans who traded in everything else free of duty, paid duty on salt to Jaffier Ali Khan. In 1767, on the failure of Lord Clive's plan the Directors insisted "that the manufacture and trade should be perfectly open to all Natives, provision being made for the payment of such a tax on salt as should not raise its wholesale price beyond Sicca Rupees 140 for every 100 maunds."

In 1780 after several attempts to introduce less restricted systems Mr. Hastings introduced the monopoly. The revenue rose

at once from Rs. 8,427 in 1780-81 to Rs. 6,25,747 in 1784-85. It however sunk again till Lord Cornwallis instituted public salt sales in Calcutta. Since that period the Salt Regulations have been :—

Of	1793	Regulation	XXIX.	Repealed.
"	1795	"	LII.	Ditto.
"	1798	"	IV.	Ditto.
"	1800	"	IV.	Ditto.
"	1801	"	VI.	Ditto.
"	1801	"	XII.	Ditto.
"	1803	"	XLVIII.	Ditto.
"	1804	"	VI.	Ditto.
"	1804	"	VII.	Ditto.
"	1806	"	IX.	Ditto.
"	1810	"	IX. Section 18	Ditto.
"	1810	"	XVII.	Ditto.
"	1814	"	XXII.	Ditto.
"	1817	"	XV.	Ditto.
"	1819	"	X.	
"	1824	"	I.	
"	1826	"	X.	
"	1829	"	XVI.	Repealed.
"	1835	Act	IX.	
"	1838	"	II.	Repealed.
"	1838	"	XXIX.	
"	1843	"	XIV.	
"	1848	"	XVI.	
"	1849	"	XIII.	
"	1851	"	III.	

In 1790, the duty was Co.'s Rs. 3½ per maund. The public auctions however, strengthened the sub-monopoly formed by an association of capitalists who clubbed together to buy all the salt. In 1835-36 sales at fixed prices of unlimited quantities were finally adopted. In 1836, the Commons' Committee recommended :—

First.—That the system of public periodical sales should be abolished.

Secondly.—That the Golahs should be kept open at all times for the sale of salt in quantities not less than 100 maunds.

Thirdly.—That the price to be paid by the purchaser should be fixed at the cost price to Government, added to a fixed duty.

Fourthly.—That the import into Calcutta of salt manufactured in any other country than the districts subject to the Bengal Monopoly should be permitted, such salt to be sold at such times as the proprietors may please in quantities not less than 100 maunds.

Fifthly.—That such imported salt should be subject only to the same duty, as that sold by the Company, and no other duty or charge whatever, except a fair and reasonable rent on such salt as may have been bonded.

Sixthly.—That the duty to be imposed should not exceed the average rate of the nett profit of the ' Company's monopoly for the last ten years.' "

These recommendations have most of them been obeyed, but it was not till 1847 that the present system of fixing prices was adopted. In 1844, the duty was reduced to Rs. 3 a maund, and in three years the quantity sold increased from 57,66,729 to 63,88,864 maunds. In 1847, a further reduction of 4 annas was made, and the price was fixed for the first time at the cost price plus the duty. The actual loss of revenue from this change was in 21 months Rs. 12,18,288, consumption having increased to the extent of 23,801 maunds a month. On 1st May, 1849, a further reduction of 4 annas was made. The duty was now Rs. 2-8 a maund, the present rate. The total reduction of duty since 1844 has been 23 per cent, or from Rs. 3-4 to Rs. 2-8 a maund. The consumption in 1854-55 was 66,07,100 maunds. An increase of 4½ lakhs would restore the Revenue to what it was before. Foreign salt began to be largely imported in 1835 when 2,84,858 maunds came in. In 1851-52 the quantity increased to 29,26,866 maunds. It has fallen to an average of 19,51,796 mds. for each of the last three years. There are now seven Salt Agencies; Pooree, Cuttack, Balasore, Hidgellee, Tumlook, 24-Pergunnahs, and Chittagong. In 1854-55 there were 49,33,981 maunds consumed; the receipts were Rs. 1,82,47,000 and the charges Rs. 27,06,000. The gross revenue therefore was Rs. 1,55,41,000. Deducting charges Rs. 13,53,000, the nett profit on the salt monopoly was in that year Rs. 1,41,88,000.

Mr. Plowden proceeds to consider the expediency of introducing an excise. He narrates the history of Mr. Prinsep's unsuccessful experiment, and the re-opening of the Narainpore and Goordah Works under an excise system. He subsequently analyses the correspondence between the Lieutenant Governor and the Board of Revenue to establish an excise. The experiment was tried in the 24-Pergunnahs under the most favourable circumstances. Two persons applied for licences, and they manufactured only 20,000 maunds. The prospect of success appeared doubtful and remote. The two manufacturers who came forward however intend to enlarge their operations. Mr. Plowden considers this fact satisfactory, and holds that all the arguments against the success of the plan are based upon the result of a very small experiment which affords no fair criterion. He continues to dispose of objections. It is argued that "*under a system*

of private manufacture, the supply of salt in the interior of the country would be deranged." Salt obeys the ordinary laws of trade.

"That under a system of private manufacture a few capitalists would obtain a monopoly of the supply." Any sub-monopoly is impossible while salt can be imported so freely.

"That under a system of private manufacture, there would be more evasion of the tax by illicit manufacture and sale, than there is under the present system of Government manufacture." The master manufacturer would be better able to smuggle than the molunghees or labourers. But he would only occupy the position now occupied by the native agency. There would be preventive officers, and the only effect of the change would be that corruption must be spread over a wider surface, and be consequently less profitable.

"That the preventive system necessary under an Excise would be more expensive to Government, and more vexatious to the Molunghees than the present plan of Government manufacture." This is true if the manufacture is to be absolutely free. But it is not proposed to make it absolutely free. The measures taken now to ascertain the quantity of salt in stock, and its concentration in different golahs, could be taken "equally whether the salt is made on account of Government or on account of a private person. In either case precisely the same danger has to be guarded against, by precisely the same means; and in either case precisely the same result follows any laxity of administration. It is not possible that, all other circumstances being the same, a Molunghee can find it less easy to manufacture salt clandestinely, and to pass it away from the Works secretly, because he is pretending to be making salt only for Government, than he would find it if he were pretending to be making salt only for a private person, to be stored and registered by Government."

Mr. Plowden therefore holds that it is possible to introduce a system of excise. Mr. Plowden proceeds to notice various details connected with the existing system, and suggests plans to overcome minor difficulties, and records his deliberate opinion that the molunghees are well treated, and that the discontinuance of the salt manufacture would not deprive them of the means of subsistence. He proceeds to observe that the salt duty throughout India, is productive, is familiar to the people, and could not be replaced by a duty less objectionable: "apart from the questions of the rate of duty and the manner of levying it, and presuming the amount of the duty upon salt to be moderate with reference to the circumstances of the people, the whole of the evidence on both sides of the question of monopoly goes to this, that no less objectionable tax can be pointed out. The people are accustomed to it, and pay it with-

out complaint, and though it does press upon the labourer more severely than upon a man of the classes above him, in proportion to the respective means of each, it is the only tax, direct or indirect, of any description, which labourers and other poor people in India are obliged to pay."

He is also unable to admit that the present price even in Gyah where salt costs Rs. 5 a maund, is so high as to become a material burden on the poor man, but still he considers that salt in Bengal is unnaturally dear. The duty is high when it is considered that the cost price is four times as great as on any other Indian coast. Moreover the consumption may be stimulated. In fourteen years a revenue of thirty-five lakhs of rupees has been abandoned by successive reductions. An increase of 14 lakhs of maunds would restore the revenue. An increase of $11\frac{1}{4}$ lakhs of maunds has occurred. If a reduction is made it should be of 8 annas a maund. The benefit of small reductions is felt principally by the dealers. The reduction would enable Government also to dispense with the preventive line below Allahabad, beyond which point a differential duty exists. The loss would amount to 53 lakhs of rupees a year, which would require an increase in consumption of eighteen lakhs of maunds, which will scarcely occur for many years.

Mr. Plowden next recounts the History of the Salt Administration of Arracan. The salt is manufactured in Aeng and the Island of Ramree. The manufacture and sale are absolutely free, but the export is totally forbidden to Bengal. Mr. Plowden recommends that this restriction, so far as Calcutta is concerned, should be abolished. In the Tenasserim Provinces the manufacture of salt is absolutely free subject only to an excise, levied in the shape of a license of 4 annas on every earthen pot, and 1 Rupee per iron boiler employed in the manufacturer. The average revenue of 10 years is only Rs. 2,638. The total of 1854-55 was however Rs. 3,465-14, representing an outturn of 1,47,583 maunds. In Pegu also the manufacture is free, subject to an excise of 4 annas per earthen pot. In 1854, 16,000 pots were worked in the district of Bassein, yielding an estimated outturn of 1,81,770 maunds, of which one-third is sent across the frontier. A tax of 1 Rupee per 100 viss. or $4\frac{1}{2}$ maunds is levied on salt exported across the frontier. Mr. Plowden recommends that this duty be abolished. Also that a drawback be allowed on salt exported by Sea.

In the North-West Provinces the manufacture of salt is prohibited. The Provinces are supplied from Bengal, or the rock salt mines of the Punjab. Native salt is also obtained from the Sambhar Salt Lake in Rajpootana. It is subjected to a duty varying at different places from Rs. 2 to Re. 1, and a further

duty of Rs. 8 per maund if it passes to the Eastward of Allahabad. Mr. Plowden examines this Custom's line, its establishments, and the powers entrusted to it. The average quantity of salt imported in the ten years ending 1852-53 was 21,73,015 maunds, and the duty 47,24,366. It has fallen since from the excess of imports from the Punjab. To the mass of the people the price of salt may be taken at 1 penny for $1\frac{1}{2}$ lb. At this price the cost of salt to a family using 8 lbs. a head, would be Re. 1-5-4, and thus equal, if they earned Rs. 8 a month, to $3\frac{1}{2}$ per cent. of their wages. This is the only tax he has to pay, and it cannot be regarded as burdensome. There has been no material advance in imports between 1844-45 and 1852-53, "nor do the importations of those years exhibit, on an average, an advance of so much as a lakh of maunds on the average importations of the preceding six years, from 1838-39 to 1843-44." The population which consumes the salt crossing the custom's line may be taken at 3,08,72,766. At 12 lbs. a head they would consume 46,30,915 maunds. The imports are only 22,60,376 maunds. Therefore half the salt consumed is subject to no taxation. The illicit salt is partly smuggled, partly manufactured in private houses from earth-salt. It is also manufactured from salt-petre works. This practise should be suppressed.

In the Punjab the salt is found all over the salt range. It is very good salt. The Cis-Indus mines are in the hands of Government. The salt is sold at cost price, plus a duty of Rs. 2 a maund. At the Trans-Indus mines the duty is only 2 or 4 annas a maund, and a preventive line is established along the Indus. The total cost of the Punjab Salt Department is Rs. 1,85,472 a year. The gross receipts in 1853-54 were Rs. 19,50,535. Deducting charges and Rs. 1,21,908 for expenses of excavation, we have Rs. 16,48,155 as the revenue derived from salt. The charges amount to 11 per cent. on the nett receipts. The extreme cost at the furthest spot is 1 Re. a maund, and the extreme expenditure of a family, 1-10 annas a year, or $4\frac{1}{2}$ per cent. on the minimum income. The total quantity sold in 1853-54 east of the Indus was 9,75,267 maunds or sufficient at 12 lbs. per head for 65,01,780 persons. There were at least 11,00,000 of people in the Punjab.*

Mr. Plowden accounts for some delays. He was ill from January 30th, 1855. The Second Section of the Madras part of the Report was "forwarded to England by the Mail from Bombay of the 28th of April; the remaining three Sections of the Madras Part, and the four first Sections of the Bengal Part were transmitted by the following Mail of the 12th of May; and the remaining seven Sections of the Bengal Part, completing the Report, will be forwarded by

* Mr. Plowden had not seen the last Census. It gives a population of ~~thirteen~~ millions.

the next Mail of the 28th instant. A duplicate copy of the Report and Appendices has also been transmitted to Calcutta, on various dates, of all but the last four Sections of the Bengal Part of the Report, which are now about to be despatched."

He travelled from 19th Feby. 1854, to 3rd June. On 25th May, 1855, he received orders to proceed to Nagpore. In the interval he was employed in digesting papers. "The first Report of the Madras Public Works Commission occupied three stationary Commissioners two years uninterruptedly. The Post Office Commission occupied three Commissioners, one for each Presidency, for fourteen months and a half. In the Salt Commission Mr. Plowden has been alone."

In conclusion Mr. Plowden thanks certain officers who have assisted him with information.

BOMBAY EDUCATION.

Examination at Elphinstone College.

ON 31st March, 1856, Mr. C. J. Erskine, Director of Public Instruction, submits five reports on the Examination of Elphinstone College. Mr. Erskine mentions the documents, and observes that the Examiners have performed an ungracious task with much care, but that allowances must be made for the want of books and apparatus, the scanty establishment of Europeans, and the want of power in the Professors to prevent paying students from passing up through the different classes without any examination at all. Mr. Erskine considers the estimates less favourable than those of former years. Attention is drawn especially to the want of thoroughness. The Examiner in English Literature was much disappointed. He had heard that the students might contend with Collegiate students in England. He was obliged to lower his standard of examination, and would if again called upon, set even simpler papers. The lads are not equal to English students. They have merits, and make great progress in some branches, but have no opportunity of literary study, few books, and no masterpieces in a complete form set before them. The Examiner thought it indiscreet to encourage the young men to study our great writers at present. That is a large question, but Mr. Erskine feels that much more time must be devoted to elementary teaching. The Principal will propose the details of this scheme. The students are specially deficient in English Composition, which must be attended to more sedulously. The students rely little on their own thought and observation. This evil must be met in the lower schools. "Boys must there be taught how to observe, how to delineate

and describe what they have observed, and how to exercise their minds on common things." The prevalence of bad Spelling, bad Grammar, and bad Penmanship have been often pointed out by the Professors. They indicate the necessity for more European teachers. If the merits of the native teachers are recognized, their own good sense will see the propriety of English being taught by a native of England. There has grown up among the students a habit of plagiarism. The Principal has animadverted on this before, and will animadvert on it again. Government will not however overlook the testimonies to proficiency, especially in "some portions of history and some branches of mathematical, economical, and moral science." Mr. Erskine would be glad to adopt Captain Rivers' suggestion as to College Tutors. He only hesitates to recommend an increase in the Vernacular Department from a hope that English study may first be arranged. He sincerely trusts the change to independent Examiners will not discourage the students. The number of scholarships on this occasion is limited. Mr. Erskine was doubtful if they should be so, the scholarships being given not only as the rewards of successful study but as inducements to further effort. The minimum number of marks, however, had not been reached. It is unfortunate that the negotiations in England for three new Professors and a Headmaster for the School Department have been delayed.

Major G. Pope on 28th January reports the result of his examination of the Vernacular Department. The students to be examined were the candidates for admission, and the 1st and 2nd year lads. The students generally "have not acquired the power of expressing themselves with facility and correctness in their several vernacular languages when translating from English; nor of rendering those languages into correct and idiomatic English." The students rather lose ground than otherwise after they pass into the College. The second year class failed in translating the English passage selected, (from an Essay by A. Helpe) only two came at all near, and their translations deserved no marks. The passage was not easy. An easier one was given. There were some tolerable translations of this. The Murathee were better than the Guzeratee students. This arises from the more fixed character of the former language. The students in the same class were singularly unequal, owing to rules of admission, "on which" it was not Major Pope's "duty to remark." More time should be devoted to the study, as there is a tendency to neglect the vernaculars. Major Pope adds a table of the examinations. The number of marks was ninety, 30 for viva voce examination, 30 for each of the translations. Of the candidates the highest obtained 18 for translations into the Vernacular, 26 for those

from the vernacular, and 18 for the viva voce examination. All obtained some marks for translation into the vernacular, and for the viva voce examination, but 13 obtained none for translations from the vernacular. Of the first year's students only four out of 34 obtained any marks for translations out of the vernacular, and of the 2nd year students four failed utterly in the same branch.

Captain H. Rivers on 1st February, 1856, reports the result of his examination in Arithmetic and Mathematics. He found the students "quick in Arithmetic, well acquainted with Algebra, and the six books of Euclid: but while knowing the rules, they did not seem so well grounded in Plane Trigonometry or Analytical Geometry as he could have wished, nor always to understand the meanings of the terms or the real nature of the magnitudes discussed."

The first year class answered questions in the theory of Numbers, Logarithms, and Equations, and the Rules for the Solution of Spherical Triangles, but a simple question given to elicit their ideas of the nature of a ratio was not answered correctly by one-third of the class. The second year's students answered in Conic Sections, Hydrostatics, and Hydraulics, well, but they knew nothing of Statics, of the Centre of Gravity, or the Mensuration of Surfaces and Solids. The third and fourth year's students answered well in Dynamics and the Elements of the Differential Calculus, but knew nothing of the simple mechanical powers. There was much in the examination to call for admiration, but without books the students were unable to apply similar reasoning by analogy to easier examples. They had no thorough comprehension of the terms or symbols used. Captain Rivers thinks this state of things partly owing to the desire of showing to the public a high state of attainment, and to the good opinion which the students thereby acquire of themselves. Much of this exercise of the memory rather than of the reasoning powers, is true also of English Universities. The difference is owing to the introduction of private tutors. The Professors and Masters have done all that ever is done without such a system.

Assistant Surgeon R. Haines, M. B., on 23rd February reports his examination on Chemistry and Physical Science. A printed paper was given containing seven questions. This was followed by a viva voce examination. The candidate class knew little of Physics, one-third giving creditable answers. In Physical Geography the answers were far from satisfactory. A large number could not tell where the Tropic of Cancer was. The written answers were better. The answers on Chemistry were creditable.

The first year class answered badly in Physical Geography. The answers were worse than might have been reasonably expected. A large proportion knew nothing about the Mississippi, the

Dead Sea, or the Jordan. In Chemistry the answers displayed acquaintance with facts, but the majority had not studied attentively. The second year class answered well in this science. The third and fourth class answered the written questions fairly, but in viva voce examination deficiencies appeared. This was especially the case with reference to Palæontology. They appeared to better advantage in the Mineralogical Division, being able to identify the typical specimens of rocks and fossils submitted.

Mr. A. G. Fraser on 29th February, reports on Political Economy and Moral and Mental Philosophy. The first class had evidently studied Locke. The second class was crammed to the mouth with the ipsissima verba of the authors read, but it was melancholy and astonishing to observe how little idea they had of thinking and reasoning, or habitual reflection. What thought had been elicited was in connection with Locke's Essay. The third and fourth year classes were more satisfactory. The students are forming the habit of thinking and reasoning. 150 questions on Butler's Analogy were well answered in words of the students own. The students had no acquaintance with the literature of the subjects on which they were examined.

Mr. Howard on the 7th March, reports on English Literature. Mr. Howard apologizes for the length of his Report on the ground that his conclusions differ from those of all previous examinations. He considers the classes inferior to English undergraduates. Mr. Howard is "surprised at their almost universal carelessness. Written exercises at an English School or University are invariably copied from a rough draft after careful revision. I saw no trace of this wholesome practice in the papers sent in to me. On the contrary, they appeared hardly in any case to have been read over and corrected by the writer." The Orthography was defective to an extent which seemed unaccountable, unless indeed Spelling had been taught on Phonetic Principles. In the viva voce examination the student's pronunciation and accent were bad. They were quite insensible to Prosody. The students seemed however intelligent, eager to learn, cheerful, and modest.

In the candidate class the Spelling was in some cases deplorable, so bad as to be discreditable to the School. The English letter, however, describing life in Bombay, was in two or three instances fairly done. The class made a very creditable show in History, and almost all were ready in Chronology. Their geographical knowledge appears to have been acquired from books, a deficiency which showed itself in the viva voce examinations. The written answers were good, the oral answers vague and meagre. The first year students failed in Geography, but replied readily to Questions on the History they had read. The History was Murray's.

The answers on Heeren's Manual of European History were defective. To questions on English Literature the boys' answers showed only memory. Fifteen described Pope in the same words, the words being the first of the Article on Pope in Chambers' Encyclopædia. The descriptions of life in Bombay were very good. As to the second year's class "they struck Mr. Howard as inferior to the students of the first year. They seemed to have been neglected at School. The Spelling of the large majority of the written papers was nothing less than disgraceful. The Grammar was mostly deplorably bad. The *viva voce* answering of all, except four or five students, was poor in the extreme." There was no indication of a real insight into the facts of the History they had read.

The third and fourth classes sent in most unsatisfactory Essays. The subject was the effects produced on the History of the World by the invention of printing. The best of them were fair in respect to Grammar and idiom. They did not show any surprising or disgraceful want of instruction, but not one of the young men seemed to have a notion of methodical composition. The writers seemed to have exercised their memories and no other faculty. These papers however were good compared with the papers upon Literature, which Mr. Howard hesitates to describe.

On 29th April, the Governor in Council resolves that "the Examiners are entitled to the acknowledgments of Government, and that Mr. Erskine has analysed the results of the examinations with accurate discrimination." The Governor in his Minute, dated 21st April observes that it is impossible to read these Reports without a feeling of disappointment. The Government would be guilty of a serious error if it blinked the facts which they disclose." Too much has been attempted. The staff of Professors, and of European Assistants is too small. Previous to their introduction the number of subjects of study should be reduced. Mr. Lumsden in a Minute, dated 27th April, strongly supports Captain River's suggestion as to the introduction of private tutors.

BOMBAY EDUCATION.

Examination of Poona College.

ON 26th December, 1855, the Reverend P. Anderson reports on the examination of the students of this College in English Literature. The pupils of the Normal Class in the School Division are intended to be Teachers in the Vernacular Schools. They read

fairly, and could explain most of the words used in McCulloch's Reading Book. Of the class of candidates (27) four read well. Not one in the class could write quite accurately from dictation. Four failed altogether. Their answers on History shewed diligence, but there were faults in Grammar. "Whenever a sentence was correctly expressed, it was an exact transcript of the author's words. Thus the whole twenty-seven, without, I believe, a single exception, wrote of the Emperor Baber, that he proclaimed 'the voice of honour was loud in his ears,' and of Aurungzebe, that 'his crimes were written in deep and legible characters.'" Their answers were incomplete, and in broken English. In the Essays this class all made errors, varying in number from five to sixty-seven. The Senior College Class (12 students) were examined in Political Economy, Shakspeare, Extracts from Chambers' Encyclopædia, and Essay Writing. They succeeded in Political Economy. Many of them had studied Richard the Third so successfully that they could evolve the meaning of obsolete phrases, and obscure passages.

Professor Draper on 18th January reports favourable of the student's examination in Logic. The book used was Whateley's Easy Lessons on Reasoning. "Raoji's paper would no doubt have been better but for his inability to express himself in English." The class generally manifested great attention.

Captain J. Hill reports on 7th January on the examinations in Mathematics and Natural Philosophy. He observes that the classes generally succeeded in Mathematics. They had however no "competent knowledge of English." On 11th March, Captain T. A. Cowper reports that he examined the Vernacular Department of the College. His opinion is decidedly unfavourable. The answers in Murathee Grammar were indifferent. The Murathee writing was bad. Some of the stipendiary students were indifferent. In one case a student, paid for nine years, sent in a Vernacular Essay, as wanting in arrangement as destitute of consecutive reasoning. One student "*who is an English Teacher*, has, at the close of several sentences in such broken English as to be sometimes scarcely intelligible, written for 'they find the tables turned upon them,' 'they turn the tables over them;' while another *Teacher* has thus expressed himself:— 'wicked men always try to injure other person, but if he is superior to them, or Roland for Oliver, then he brings them into difficulties and distresses;' and has added in a note—'Rowland for Oliver is a historial frase.'" The Principal informed Captain Cowper that the students had no instruction in the Vernacular. There was a general disinclination to the study. Of the 1st Translation Class some acquitted themselves creditably. In the second class none of the stipendiaries succeeded. There was a

marked tendency in all the classes to translate literally. None of them attempted written translation. Of the Arithmetic Classes a third of the first class passed a fair examination. Of the rest all but three in the 2nd class were bad. The students in the 1st Literature Class passed a fair examination. Their ideas of Political Economy were confused. In the 1st and 2nd Mathematical Classes three boys succeeded. All of the remainder failed more or less.

Captain Cowper concludes with the Normal Class. Their performances were very unequal, the students having been in the College for periods varying from six months to four and a half years. Two of this class passed a superior examination. Some were indifferent, the time passed being considered, and some had even retrograded. Captain Cowper offers as a general opinion that all classes in the department, have been pushed on too fast and too far.

DISTRICT ROADS.

Madras Records, No. XXX.

THE Deputy Chief Engineer in the Department of Public Works, on 22nd September, 1855, submits the reports from the District Collectors, and gives the following as the works in progress :—

Ganjam. North Trunk Road, Berhampore and Russelcondah Road. Russelcondah and Koinjuroo, Berhampore, and Gopalpore Roads. Roads from Purla Kimedya and Palcondah to Calingapatam, and Poondy.

Vizagapatam. It was resolved during the scarcity of 1853-54 to apply labour to some important lines between the interior and the Coast. They are progressing. Bridges were sanctioned in the last Budget. All will be brought up to first class.

Rajahmundry. No roads in progress except the Trunk Road. The department has devoted itself to canals.

Masulipatam. No roads, but the great canals from the Kistna Anicut have been prosecuted.

Guntoor. The Trunk Road from Madras to Hyderabad has proceeded. The Kistna Canals advance.

Nellore. The Kistnapatam, Nellore and Cuddapah Road, the Goodoor and Chitivel Road, and Enamellore and Cummun Road proceed.

Cuddapah. The two northern lines above mentioned have been prolonged. The road from Cuddapah to Bellary has been begun. The Trunk Road between Madras and Bellary is also

in progress. The large nullas, the Ralla and Boogga, between the town and cantonment of Cuddapah were partially bridged during 1854.

Bellary. Rs. 13,21,925 was expended on 289 miles of substantial road during the scarcity. When perfected with bridges these roads will be of lasting benefit. The Bellary and Dharwar Road, and the Trunk Road to Madras have also progressed.

Canara. A large expenditure has been distributed in moderate sums over the communications from Cassergode to Sedasheoghur. The new works are the Guersappa Ghaut between Honore and Mysore. The Charmady Ghaut leading into Mysore from Mangalore. The Singawaree and Kyga Ghauts on the right and left banks of the Sedasheoghur. The increase in trade has been, including cotton, 17 lakhs.

Chingleput. Not much work.

North Arcot. No considerable works. Several lines improved.

South Arcot. Extensive works on "the Cuddalore and Salem Road, the Porto Novo and Bowangherry Road, the Cuddalore and Punrooty Road." The Trunk Roads to Trichinopoly and Tanjore under construction.

Salem. This district is well furnished with communications. The Topoor Ghaut between Bangalore and Trichinopoly has been improved, and new Ghauts opened between the Shivaroy Hills and the low country of Salem.

Tanjore. Two new Roads, and 13 large bridges.

Trichinopoly. The expenditure has been applied to "the Trichinopoly and Madura Road, the Trichinopoly and Salem Road, the Koolitully and Poodoopolium Road, and the extension of the Trichinopoly and Arealore Road." The Trunk Road to Madras within the district has been completed. The roads in Trichinopoly generally are in an advanced state.

Coimbatore. Several roads improved.

Malabar. No new undertakings.

Madura. Nothing of importance.

Tinnevely. A large expenditure chiefly for bridges has been made upon the Southern Road. 17 miles of this road remain in their natural state. The cotton roads have been prosecuted as vigorously as the supply of labour will allow.

Kurnool. No report, though repeatedly written for.

The Collectors' Reports which follow contain only details of the works thus described, and are of no general interest. The Deputy Superintending Engineer adds tables of estimates for Roads and Bridges containing the name and date of every work commenced, the amount sanctioned, and the amount expended.

<i>District.</i>	<i>Amt. Sanct.</i>	<i>Expenditure.</i>
Ganjam, ...	4,32,564	1,90,120
Vizagapatam, ...	1,02,091	54,648
Rajahmundry, ...	40,929	26,254
Masulipatam, ...	20,376	Not given.
Guntoor, ...	17,891	6,866
Nellore, ...	2,95,555	1,69,074
Cuddapah, ...	1,34,766	2,86,006
Bellary, ...	2,90,086	13,91,412
Canara, ...	3,50,616	1,40,187
Chingleput, ...	49,784	22,378
N. Arcot, ...	1,53,085	26,317
S. Arcot, ...	1,44,721	1,07,644
Salem, ...	27,203	3,710
Tanjore, ...	3,53,080	1,20,110
Trichinopoly, ...	1,24,251	1,01,865
Coimbatore, ...	2,35,406	39,538
Malabar, ...	90,706	55,124
Madura, ...	78,617	34,388
Tinnevely, ...	2,87,406	32,561
Total, ...	32,29,133	28,08,202

FORCED LABOUR IN SCINDE.

Bombay Records, No. XXXIV.

ON 9th April, Lieutenant Colonel J. Jacob, Acting Commissioner in Scinde, reports that Mr. Frere left his summary incomplete, but still he submits it. Statute labour is employed in the canal clearances of Hydrabad and Upper Scinde, and partially in Shikarpore. Col. Jacob considers the summary to express all the arguments necessary. The difference of opinion among the Collectors consulted arises from want of study and of acquaintance with the general laws affecting the question. The amount of work to be done is the same in all cases. If done by a contribution of Rupees, or a contribution of labour the result is the same. But men paid at fair rates work with a will. Men forced to work, work unwillingly. The system if left to Mr. Frere or Colonel Jacob would gradually die out, but much mischief meanwhile may be done, and the Acting Commissioner therefore suggests an order prohibiting the practice. As to details he suggests that the canals should be cleared by men paid at free rates. He has found it an excellent plan to allow men to contract for bits of

work, ten Rupees worth or so. Very little superintendence is required, and every member of the family can do something. The people often work in relays all night. "Wherever statute labour may have been due for the clearance of canals, I would recommend the levy of a water rate on the lands irrigated; the rate being proportioned to the number of labourers which the Zemindars holding those lands have hitherto been compelled to supply."

Any Zemindars who wish to clear their own canals should do so. It does not appear that Government ever authorized forced labour. It is an abuse which began under the Ameers, and which has been continued by the Civil officers. Being deeply impressed with the ruinous effects of the old system, Colonel Jacob in anticipation of the Governor's orders has prohibited forced labour in Scinde.

Mr. Frere in his summary records the correspondence. In February, 1855, it was found that the Government departments, under cover of official works, exacted supplies at less than the market rate. No such practice is allowed by Government, and the Commissioner prohibited it by Circular. Lieutenant Colonel Jacob in reply to the Circular informed the Commissioner that he had always enforced free trade on the frontier, and considered forced labour might also be abolished. That system caused all labour to be looked on as a hardship. The Commissioner on 28th February, 1855, forwarded this letter to the Superintending Engineer, and the Collectors, requesting information as to the financial effect of abolishing statute labour. The Superintending Engineer in reply stated that in parts of Upper Scinde the labourer was wholly unpaid. The system was wretched, and produced robbery. The labourer on the canals however benefited himself as well as Government, and it was doubtful if the revenue could dispense with the privilege. Major Stewart thought the system not productive of so much demoralization as people fancied. It existed in Scinde in its mildest form, and it was doubtful if free labour could be obtained. Lieutenant R. Cowper, Acting Collector of Shikarpore agreed with Major Jacob, but doubted if a sufficient supply of labour could be obtained. Lieutenant Ford considered that the wages given would be doubled under a free system, and suggested a gradual change.

"The comparative cost of clearing a certain given number of canals by free and by a statute labour would be as follows:—

Actual cost of clearing a certain given number of	
canals with statute labour, ...	Rs. 4,699
Estimated cost of performing the same work with	
free labour, ...	„ 65,705

The number of persons who received the above, Rs. 4,699 was

4,845, and the average length of time they were employed was about sixty-seven days."

After some further correspondence, Major Stewart reported that the people would not like a change. They detested measurements, and dreaded a water tax. In Sehistan the people offered to do the whole work themselves. Other Deputy Collectors agreed with Major Jacob. Mr. Bellasis fully concurred in deeming the forced labour system an enormous evil, crushing energy, stopping improvement, and looked upon as an intolerable hardship. Mr. Bellasis forwards the old rates under which the labourer earned only 5 to 10 pies per diem. Private individuals cannot obtain labour at that price, and therefore "every cultivator who puts up a wheel is bound to send one, two, or three men to clear the canals. They are detained on an average for three months, and as they will not work at five pies a day, the owner of the wheel is obliged to make up the difference to the market price of labour, or more commonly to hire substitutes at two annas per diem. If he sends his own men, he of course keeps the best for cultivation and sends the worst—the cripple, the aged, and the sick. If he sends a substitute, he has no interest in the work and is lazy and indolent, so that, under any circumstance, we get the very worst description of labourers for our canals. They have to be collected in large gangs and driven to their work, and are always discontented and unwilling workmen."

All Mr. Bellasis' Deputies advocate free labour. As to supply of labour Mr. Bellasis once wanted to remove a sand bank. The Kardar reported he could get no men. Mr. Bellasis offered $2\frac{1}{2}$ annas per diem, or $\frac{1}{2}$ anna above market rate. In a few days he had 600 men working cheerfully. The canal clearance in Hyderabad, in 1854, cost 1,36,591. The work will cost more, and the European agency must be increased; Mr. Bellasis believes the Zemindars could not be compelled to pay the difference, but thinks Government might abstain from clearing the Kurriahs or minor channels. Other opinions are quoted, all indicating the impression of the officials that statute labour should cease. The Commissioner therefore reviewing all the correspondence ordered, that where the people cleared their own canals there should be no interference, and where the Government paid, the wages should be adequate.

On 22d May, Mr. Hart intimates the concurrence of Government in Colonel Jacob's views. Government is surprised at the facts revealed, attributes much of the canal mismanagement to that source, and approves the issue of a proclamation in anticipation of orders.

THE HILLY REGION OF KURRACHEE.

Bombay Records, No. XXXV.

ON 8th July, Lieutenant Colonel John Jacob, C. B., Acting Commissioner in Scinde, submits a Report by Major Preedy, Collector of Kurrachee, upon the Hill Region in the West of the Collectorate. "These hilly tracts are outlying branches of the great mountain range stretching almost unbroken from Peshawur to the ocean. They reach northward until Sehwan, where they abut on the river ; and their southern extremities are Munora Point and Cape Monze. The aspect of the region is wild and savage. The valleys and plains lie at an elevation of some 1,000 feet above the level of the Indus, while the hill ranges rise above the valleys from 1,500 to 2,000 feet higher. The formation, which is of stratified lime-stone, bears evident marks of volcanic action ; and the entire district forms a thorough contrast to the other portions of this province."

Mr. Frere intended to have reported on this tract, but left from ill health. Major Preedy was therefore requested to visit it and report. "It appears that the entire district is about 120 miles in length, with an average breadth of fifty miles, containing about 6,000 square miles of country. The establishment hitherto employed in its revenue management has been unprecedentedly small, costing only Rs. 90 per mensem. The total revenue derived in 1854-55 amounted to Rs. 1,171, of which sum Rs. 650 were realised by the levy of Re. 1 per cart-load on grass cut in the Guddap Valley, and the balance, Rs. 514, on garden lands lying along the Mulceer river banks."

Colonel Jacob is of opinion that flocks and herds must be the staple wealth of the districts. Major Preedy proposes a rough survey, and a light assessment, and grazing lands, the farm to be offered to the Chief. Would also recommend pukka wells near large villages, and roads, and would make small advances for bunds. Also he would endeavour to improve the cattle and educate the people, and would import a European Superintendent. The district is as large as Wales, and the Collector cannot attend to it in addition to his other duties. Colonel Jacob concurs, but would not recommend a greater expenditure. He would rather that Captain Hodgkinson, Supernumerary Deputy Collector should be "temporarily made available for a more detailed inspection, and such general ameliorative measures in regard to it as he may find opportunity for effecting." His establishment should not exceed Rs. 205 per month, or Rs. 115

more than at present expended. It appears from the Census made in February, 1856, that the district contains

Permanent habitations, ...	187
Huts, ...	3222
Hindoos, ...	2246
Mahomedans, ...	14,154

Total population, ... 16,400

Equal to $2\frac{1}{2}$ per square mile. Major Preedy gives the Topographical description already quoted, and proceeds to say that Agriculture seems never to have been attempted till our rule, though since then encouraged. The floods of 1851 and 1852 destroyed all the gardens, and only a few patches are now cultivated. "The southern portion consists of extensive plains, divided one from the other by low ranges of hills, running parallel in some parts, and in others diverging like the sticks of an open fan. At Peer Mungah the hills form a series of concentric circles round a lofty peak, and which peculiar formation is evidently the effect of volcanic action at some distant period of the world's history. The plains or valleys between the several ranges of hills are usually intersected by the wide sandy bed of a mountain stream, which, except after rain, presents a dry, unpromising surface, beneath which, however, at the depth of a few feet, abundance of excellent water is found. The plains on either side, after seasonable showers, produce abundance of forage, and are frequented at such seasons by vast herds of cattle brought from the Valley of the Indus and other parts."

The four rivers are usually well supplied with water, and the valleys are extremely beautiful. The scenery generally is magnificent. The population is scanty, chiefly Sindees, and Beloochees. The principal tribes are the Noomreas and Jokeas, who are divided into clans, with portentous genealogical trees.

The Noomreas are sub-divided into twenty branches, who acknowledge a Sirdar residing at Humulanee as their Chief. He usually resides however at Kotree, where he has a substantial house. He is under the influence of two uncles. The Jokeas are men of aquiline features, courage, and martial bearing. They claim to be Rajpoots, and are divided into numerous clans all obeying Jam Meer Ali. He has Jaghires and a pension of Rs. 250 a month, but is always in debt. He is unostentatious, 70 years of age, and has a son twelve months old. The Jokeas and Noomreas have always conducted themselves well. They have abundance of cattle. They supply the ranks of the city police. The Kulmutties, who reside among the Jokeas, claim to be

Arabs. The Beloochees are very few. Major Preedy proceeds to offer the suggestions already mentioned by Col. Jacob.

ADOPTIONS IN THE DECCAN.

Bombay Records, No. XXVIII.

IN 1852, a Memorandum was placed before the Governor of Bombay, "*regarding the question as to how far Government are bound by Unrecognised Adoptions on the part of Enamdars and others holding Liens on the Public Revenue.*" On 4th April, 1845, Government in reference to a case which had arisen observed, "whether an Enamdar who held his Enam for himself and his descendants could alienate it from those descendants, or could, by any transfer to other parties, deprive Government of its right to escheat should the family become extinct, was a question on which much doubt had arisen, but in the cases coming before Government it was as well to avoid, if possible, any discussion in respect to it." On 15th April, 1845, Mr. Hart, Enam Commissioner observed that it had always been a standing rule that, "an adoption not sanctioned by Government gave the person adopting no right to perpetuate any alienation of Government revenue." It had been recently enforced. In reply, Mr. Hart was requested to collect facts. Information was requested from the Residents at Baroda and Indore, and the Agent in Gwalior. Their opinions having been received. Mr. Hart on 27th March, 1847, reported that "as a general rule among the existing Governments of India no adoption was looked on as valid unless *previously sanctioned* by the Sirkar." The same rule was observed by Mr. Chaplin, the officer employed in settling the Southern Marhatta Country and Deccan after the conquest. No orders to relax the rule were ever passed. The rule seems clear, "but Government has not been equally decided in its opinion of transfer of Enams by gift or sale." This follows however logically, from the other. On 30th September, 1847, the Governor ordered that the principle should be formally announced. Mr. Hart accordingly submitted rules containing such an announcement. They were forwarded to the Court of Directors who referred them to the Government of India. In July, 1851, Mr. Hart referred to an order published on 24th October, 1831, in which the Government of Bombay declares that "as a general rule, in the Deccan, Government admits that children adopted with such forms and sanctions as may have

been usual should succeed to Enam lands, or whatever may be considered private property."

A quantity of correspondence followed, the right of adoption without special permission being generally allowed, pending the orders of the Court of Directors. In 1848, the Court of Directors ordered that "a general notification should be issued, warning the hereditary district and village officers that adoptions made without previous sanction will not be held to convey any claim to the succession to their Wutuns."

On 14th September, 1852, the Government informs Mr. Hart that "on reading over the Memorandum, His Lordship in Council can come to no other opinion but that Government have a right to reserve in all cases the power of granting or refusing such assent to an adoption as will confer upon the adopted son a title against the State." Pending final orders the Government would generally sanction adoptions, but refuse to allow claims under adoption without special sanction. Government has nothing to do with the rights of co-sharers in an Enam as against each other.

On 26th May, 1855, Captain T. A. Cowper, Enam Commissioner submitted another Memorandum. Up to 1825 the sanction of Government to an adoption was held essential to entitle the adopter to convey an Enam. In 1825, the Government ruled that Enams were private property. This order seems to have been issued under some misapprehension, or else "in describing the necessity of 'such forms and sanctions as may have been usual,' the sanction of the ruling power was understood to be included as a matter of course." The last is the theory supported by collateral evidence. Immediately after 1825, Sir J. Malcolm ruled that a certain amount of Nuzzarana should be levied. This plan was negatived by superior authority. His successor, Lord Clare issued the order of 24th October, 1831. The practice has not been in accordance with that order, but with the one found in existence at the conquest. At length a reference was made to the Court of Directors who on 22nd May, 1850, informed the Government of India that in their opinion "the previous consent of Government is requisite to the validity of all adoptions, so far as they affect succession to assignments of the public revenue."

The Government of India however were of opinion that it would not "be just and expedient either to alter the laws, or to extend the practice of requiring the consent of Government to the alienation of Enams or appointment of heirs to succeed to them, in any cases or classes of tenures in respect of which such consent is not now required by law or practice, or a stipulation

to that effect is not now contained in the instrument creating the tenure."

And therefore the Court on 23rd March, 1853, finally decided that they would not "direct any alteration in the existing practice in this respect, but desired that in all cases in which by law or practice the grantees of public revenue, under whatever title held, have hitherto been restricted from alienating their possessions from the direct line of the original holder, such restriction may continue to be maintained."

It remains, says Captain Cowper, for Government to determine any, and if so what are the cases in which bye-law or practice the grantees of revenue have hitherto been allowed to alienate. Captain Cowper holds from a most careful perusal and comparison of the Peshwa's records that under the native Government even a son could not hold his father's Enam without the sanction of Government. Consequently without such sanction any transfer of an Enam was null and void. Sir T. Munro also after he had settled the Southern Marhatta Country recorded his opinion in these strong terms:—

"In this country, under the Native Governments, all grants whatever are resumable at pleasure; official grants are permanent while the office continues, but not always in the same family; grants for religious and charitable purposes, to individuals or bodies of men, though often granted for ever, or while the sun and moon endure, were frequently resumed at short intervals; grants of Jagheers or Enam lands from favour or affection, or as rewards for services, were scarcely ever perpetual. It was rare that any term was specified, and never one or more lives; but it made usually little difference whether the grant was for no particular period or perpetual,—the (Altumgha) perpetual grant was as liable to resumption as any common grant containing no specification of time; it was resumed because it was too large, or because the reigning sovereign disliked the adherents of his predecessors and wished to reward his own at their expense, and for various other causes. There was no rule for the continuance of grants but his pleasure; they might be resumed in two or three years, or they might be continued during two, three, or more lives; but when they escaped so long, it was never without a revision and renewal. I believe that the term of their lives is a longer period than grants for services were generally permitted by the Native princes to run." Even Nana Furnavees when in the height of his power could not transfer a small portion of Enam land without sanction. Moreover instances are given in "*which adoptions were disallowed and Enams resumed, on the specifically recorded grounds of such*

adoptions not having been made with the sanction of the Peshwa's Government."

The knowledge of these facts must have been withheld from Mr. Chaplin by the hereditary Duttur Karkoons. Captain Cowper proceeds to show that the ideas entertained by Mr. Warden, Member of Council, as to the principles on which the Deccan was settled were incorrect. Indeed they were at variance with an opinion acted on by himself when in 1845 he acted as Agent for Sirdars.

On 31st January, 1855, the Court of Directors ordered that the following Rule should be considered inviolable :—" We are decidedly of opinion that in no case should the alienation of an Enam be recognised for any term exceeding that for which the present holder and his heirs may possess an interest, and that the eventual right of Government to resume the revenue on the extinction of the family of the original grantee should be carefully maintained." Lastly, Captain Cowper quotes the following opinion recorded by the Marquis of Hastings on 21st September, 1845 :—

"Of all subjects of taxation I should conceive the profits of rent-free lands the most legitimate. The holders of land of this description are at present exempted from all contribution, whether to the local police or Government by whom they are protected, or to the public works from which their estates derive equal benefit with the rest of the community. They are indebted for the exemption either to the superstition, to the false charity, or to the ill-directed favour of the heads of former Governments and other men in power, and have little personal claim upon ourselves for a perpetual exemption from the obligations they owe as subjects. Most of the tenures may be considered invalid ; indeed, the scruples which have saved the whole of these lands from indiscriminate resumption have given cause to admire as much the simplicity as the extreme good faith of all our actions and proceedings."

On 9th July, the Government of Bombay forwarded Captain Cowper's Memorandum to the Court of Directors signifying that it was intended to require the sanction of Government to any alienation. The Court approved. On 15th May, Captain Cowper submitted further proof that the order of 1825, had been misapprehended. That order was based on Captain Robertson's representations. But six years after Captain Robertson declared judicially " my opinion is, that to enable the Hindoo son to inherit the possession of his adoptive father, in any country or jurisdiction of India, the sanction of the Government of that country to the act of adoption is required by the Hindoo law as a *sine qua non* of legal title."

CANALS IN HYDRABAD COLLECTORATE.

Bombay Records, No. XXXII.

ON 22nd January, 1856, Mr. Frere, Commissioner of Scinde, submits to Government an annual Report by Mr. Beatty, Assistant Collector for Canals in the Hyderabad Collectorate. The annual Report is the first of the kind and bears date 1st August, 1855. The Canal Department has deteriorated. The Canals are shallow, unnecessarily numerous, tortuous in course, with high spoil banks close to the edge. Little has been accomplished towards giving the Canals a proper slope of bed, from want of instruments. Till instruments can be procured and sections made, the supply of water will never be obtained. Mr. Beatty made some sections of the Canals and "in every instance found the slope of bed inclined the wrong way. In some Canals through the entire length from mouth to tail, and in others for some miles from their mouths." As regards straightening and sloping the canals considerable improvements have been effected, Mr. Beatty reports other improvements in construction, and says that 368 have been cleared during the year. Mr. Beatty names the principal canals, mentioning the peculiarities in construction involved in the local circumstances of each. Lieutenant Colonel Turner, adverting to the report, expresses confidence in its accuracy, and observes that the result of employing European Agency alone for the measurements has been satisfactory. Tables are added giving length, cost within the year, area of ground watered and other particulars relative to the canals. The total cost in 1855-56 was Rs. 1,17,315. Government on 10th May, 1856, reviews correspondence, orders it to be printed, and sanctions the employment of four European Canal Surveyors on Rs. 150 each for measurement work.

PUBLIC WORKS, MADRAS.

Madras Records, No. XXIX.

THE Department of Public Works on 28th September, 1854, called for the opinions of the Collectors on the Public Works affecting their districts, and suggestions for improvements. Accordingly the Collector of Madras reports that of the works suggested in the Collective Memorandum the coast canal and sup-

ply of water alone affect the Presidency. He considers that for the canal "too much reliance must not be placed on tidal supplies of water." The means for preventing the choking of the Canal must be made more effectual. He agrees with the Collective Memorandum as to the supply of water, and proceeds to speak of Guntoor.

The Collector of Canara considers that ghauts, roads, bridges, canals, harbour improvements, light-houses and the means of instruction in the Arts and Engineering are required. Mr. Maltby enters into detailed suggestions on all, pointing out the places for Ghauts, and the localities which require roads. The peculiarity of Canara is "that while the soil is most favorable for making cheap roads, the surface of the country is such, that unless a road is made no cart can possibly be used." In regard to instruction he proposes to employ under the Ordnance Artificers appointed to the district "two or three youths as Carpenters, and the same number as Blacksmiths, paying them from five to eight Rupees a month. They will be a kind of Apprentices. Under the Civil Engineer and under each Executive Officer several pupils might be advantageously placed."

The Collector of Tanjore reports that relieving him of the duties of the maramut department is no relief unless the whole revenue establishment is also relieved. Unless one officer has the control of the subordinates of all departments, the subordinates will clash. If not the departments must be distinct. Mr. Forbes demurs to the opinion that only professional men are required to decide on the most efficient public improvements. The communications in Tanjore are usually "under the second class—made roads, with tunnels and bridges complete, but without any surface coating of metal. There are but two soils available in the delta of Tanjore,—black mud and river sand being mixed together, however, they formed very fair communications. The roads are high causeways running through the irrigated lands. The system advocated by the Committee of gradually forming a net work of internal communications by the annual expenditure of twenty Rupees per mile, in making roads between all cusbah towns, is one that does not appear adapted very speedily to effect its object. The average cost of earth work for a mile of road in Tanjore is Rupees 400, so that supposing the two towns to be united were only sixteen miles apart, it would require twenty yards on the Committee's system, to perform the earth work only, and on a moderate estimate of three channels in the mile, requiring each a tunnel costing 80 Rupees and taking an account of bridges, a further period of nearly thirteen years would pass before the communication was of any practical use. I should be much disappointed if I thought that one rate of pro-

gress was to be sixteen miles of road in 33 years." Mr. Forbes strongly advocates a low speed Railway between Negapatam and Trichinopoly, or "a tram-way of granite stone, laid on a masonry foundation—the cost of such a work would probably be about 4,000 Rupees a mile, and it could be constructed on the present road from Trichinopoly to the coast for the sum of four lakhs of Rupees." Mr. Forbes does not think that the plan of forming reservoirs to supply the rivers is indispensable, for the rivers of Tanjore have failed but once in thirty years, and the settlement is made on the assumption that irrigation is constant. "A variety of circumstances have combined to place Tanjore considerably in advance of other districts as regards its public works; it has about 1,000 miles of made road, all bridged and tunnelled, its works of irrigation and drainage are almost innumerable, and the liberality of Government has this year been shewn in the sanction given to two large bridges across the Coleeroon, at Combaconum, and Anakaren Choultry, so as to afford to traffic those facilities for entering and leaving the district, which it has long enjoyed within the province itself." The traffic on the Negapatam and Tanjore Road has been in August, 1854:—

Carts, ...	80,770	Foot passengers, ...	5,35,251
Bullocks, ...	1,13,712	Bullock carriages, ...	1,107
Horses, ...	1,490	Palanquins, ...	261
Asses, ...	10,978	Sheep, ...	2,775

Tanjore requires short lines to connect the roads with the villages. The villages are in the paddy fields, and the people cannot convey carts along the paddy bunds. They therefore use bullocks.

Mr. Parker, Collector of Madura, does not perceive that the district requires more works of irrigation. The only possible port is Autenkary where the Vigay disembogues, but it is disadvantageously placed. The most profitable object of expenditure is roads; Madura has many lines of road, but they are made of the natural soil, and only ten miles are metalled. The roads should be improved, particularly certain lines pointed out. The proposal for embodying a corps of labourers should be sanctioned, as labour is scarce and given unwillingly.

Captain A. Boileau, Civil Engineer, 2nd Division, reports that few roads have been commenced in his division. The additional lines are indicated, and the road from Nellore to Cuddapah specially pressed on the attention of Government. He suggests that the waters of the Pennair may be made available for irrigation, but his personal acquaintance with the district is limited.

"When it is borne in mind that this Division embraces an area of upwards of 20,000 square miles of country, and that for the whole of this extensive range there is but one Civil Engineer,

one Assistant Civil Engineer and 2 Surveyors, the Assistant having abundant occupation for months to come in completing the Pennair anicut, and estimating for and carrying out the improvement of the channels and tanks under it, while the Surveyors are chiefly employed in what may be termed ordinary tank duties, examinations of works and so on, it will appear how great is the task imposed upon the Head of the Department, and, I will add, how impossible for him to perform more than a fraction of his duties. In this year 1854, this spring-time of Public Works, there are Ghats to be traced, and roads to be estimated for in every corner of the Division, there are sections of rivers to be taken for the construction of bridges in the north, in the south, in the east and in the west, there are Overseers awaiting the presence of the Civil Engineer to be instructed in their duties at one end of Cuddapah, at the same time that arrangements need to be made for recommencing the works at an important mountain pass at the other end. A single project, before alluded to, (the diverting of the waters of the Pennair on its disemboguing from the hills for perhaps 1,00,000 acres) would rightly engage his whole attention for months, but in the terms of the Committee I regret to say 'no such definite project can yet be brought forward owing to the want of Officers in the Civil Engineer's Department.'

The department is altogether inadequate to its duties.

The Engineer of the 3rd Division or Bellary, Canara and Kurnool, indicates the detailed lines of road required, and declares that "the Bellary and Kurnool Districts are positively without direct communications passable by carts to enable their produce to reach the Coromandel Coast, and to facilitate the supply of salt inland." He indicates the Toombuddra as the only stream from which great results can be expected, and observes that in Canara owing to the copiousness of the rains irrigation is of little importance. Upon Ports and Harbours the Engineer reports that the river and harbour of Sedasheghur may be improved; "just below this harbour and forming an inner recess of its bay there is good shelter for vessels to lie up during the prevalence of the south westerly winds that are sometimes so destructive to life and property on this coast. To secure protection against north westerly gales it has been suggested that the island of Coormaghur should be connected with Sedasheghur fort by a solid stone quay. At present the bar is north of the island and fort, having greatly altered its original position, and there is very shallow water (four feet at low springs) between the former and the sand bank of the river. If materials were collected and means provided, so as to carry out the whole work in one season, it would not be one of either great difficulty or cost, as

rough stones heaped up a little above highest tide mark would suffice to secure the object." Bellikerry bay has capabilities of usefulness, while Tuddry is the best on the Canara Coast, Coomptah, the cotton emporium is an open roadstead, but considerable capital has been invested here, and the works required are the excavation of a canal from the creek to the Tuddry river, the removal of the Custom House to the mouth of the creek, and the construction of a good wharf. Honore is a good harbour for boats of a certain size, and the remaining harbours have not yet been accurately surveyed. The Engineer represents the enormous size of the division, which is nearly 23,000 square miles in extent, requiring 2,000 miles of road, and the chief town of one of whose districts is 400 miles from the chief town of another. He proposes to divide the Division into two, Canara and the four West talooks of Bellary for one, the remainder of Bellary and Kurnool for another. A rupee a mile a month on the roads "set aside for training and supporting permanent Superintendents, would insure a supply of good men for the Executive Department. These might be appointed to particular road circuits, which could be averaged at 150 miles, for the portions of which whereon work was actually to be done during the year they would receive one Rupee monthly per mile, rising in time to the full salary for maintenance and repair of the entire circuit when completed. The entire annual expenditure, without detail estimates, but to be carefully accounted for, proposed to be incurred under this system would be Rupees 80,800 for the Kurnool and east Bellary roads, whereof Rupees 40,900 or more than one-half has already been recommended for sanction to the Bengal Government. For Bellary western roads only Rupees 19,500; with which sum at the Civil Engineer's disposal, not three months would pass without a good beginning being made of those hitherto neglected lines. For Canara, Rupees 96,500 a year, including all present permanent sanctions, would afford the means of completing the net work of main roads in a comparatively short time."

Captain Collyer, Engineer of the 4th Division reports on the condition of the roads in his division, and suggests other lines. As to irrigation the district is a tank district, the rivers sometimes having water only for three months. Captain Collyer after noticing several anicuts proposed or in progress says he has "plans and estimates for the restoration of the large ruined tank of Mahundravady capable of holding 6,20,00,000 cubic yards of water, and for this, he now contemplates a channel direct from the Palaur at the anicut instead of taking it off from the Cauverypauk tank, this abstracting so much more for the eastern Talooks of Sydapett, Manimungalum, Chingle-

put and Terooporoor, these works will cost 1,50,000 Rupees."

Captain W. H. Horsley of the 8th Division reports on the roads making, and supplies an estimate for maintenance :—

"MADURA.

For keeping 574½ miles of made road in order,	Rs.	84,280	4
Superintendence,...	..	2,715	0

Total for Madura, ... Rs. 86,995 4

TINNEVELLY.

For keeping 257½ miles of made road in order,	Rs.	40,806	1
Superintendence, ..	..	2,715	0

Total for Tinnevely, Rs. 43,521 1

Total for No. 8 Division, Rs. 1,30,516 5

He describes the roads, and suggests local lines of canal, but sees little room for new works of irrigation in Madura. In Tinnevely an anicut may be thrown across the Tambrapoorney and some of the streams now wasted in Travancore may irrigate Tinnevely. All the harbours on the coasts of Madura and Tinnevely are with the exception of Tuticoreen mere roadsteads.

Captain F. H. Randall of the 9th Division advises a low speed railway "from the town of Parvattipore at the foot of the hills bordering the Jeypore country, to the port of Bimlipatam." "The present cost of transit under the most favourable circumstances in the dry weather is 1½ annas per ton per mile, and double that in the wet weather. If therefore the cost were diminished by ¾ and 6 pie charged, and if only half the daily charge is to be paid by goods, it would require a thorough traffic of about 74 tons per day. At this present time there is nearly one-fourth that amount carried in salt alone." It would run through a rich country, with good levels. It could be made on the American plan at Rs. 12,000 a mile and the cost would be follows :—

" 10 per cent. Interest on 12,000,	Rs.	12,000	0	0
Management, ..	..	100	0	0
Repairs, ...	..	100	0	0
Sundries, ..	..	300	0	0

Total per mile per annum, ... Rs. 1,700 0 0

Captain Randall further suggests a Commission to examine certain ghauts or passes towards Nagpore.

MADRAS BUDGET OF 1855-56.

Madras Records, No. XXVIII.

ON 22nd February, 1855, Major J. H. Bell, Secretary to the Board of Revenue, Department of Public Works, submitted "List No. 1, of the Budget for 1855-56, containing items amounting to Rupees 25,36,232 of which Rupees 16,51,363 are proposed to be expended in 1855-56." He proceeds to report on the works suggested.

The Samulcottah and Toonee Canal. This canal is to cost Rs. 2,34,305. The work is intended to extend the benefit of the Godavery anicut to the furthest practicable limit. In connection with the Samulcottah Canal, already in use, the junction of the Kistnah and Godavery Canals, and another canal from Kistnah to the southward, it will provide water communication of 182 miles in length. All the parts lying on these canals will be in connexion with the sea-port of Cocanada, and Coringa. "The length of the Canal will be 37 miles ; and it will be 20 yards wide at bottom, the depth of the cutting averaging $1\frac{1}{2}$ yard. The estimate for the earth work only is Rupees 1,00,782. The line of the canal is laid down along the highest practicable level with a fall of only half an inch per mile ; and the soil all the way is easy of excavation." The aqueducts will be twelve in number. There is no made road between Toonee and Samulcottah. The cost of transit is 6 annas per ton per mile. With the canal made this would be reduced to 3 pice.

Samulcottah and Cocanada Canal. A canal necessary as a continuation of the former, connecting it with the sea. It will cost Rs. 1,17,339. The canal will be only nine miles long, but the fall is 36 feet, and the locks will be expensive.

Rajahmundry Junction Canal will cost Rs. 1,22,357, and connect "by a line parallel and near to the Coast the two great and the two minor arms of the Godavery, and all the Canals parallel to the river." The whole line of the canal is a dead level. It will be 75 miles long of which only 25 require to be newly cut.

The works proposed for irrigation and navigation in the central delta of Rajahmundry will cost Rs. 3,15,932. The Report describes these works in detail. They are all in connection with the Godavery anicut. The amount hitherto expended on all these works is :—

" For Anicut, ...	9,55,921	4	8
For right bank, ...	4,41,468	14	9
Add Ellore Canal, sanctioned in Budget of 1854-55, ...	2,87,643	11	4
	7,29,112	10	1
For left bank, ...	5,08,664	9	11
For Central Delta, ...	4,40,625	1	9
Total Rupees, ...	26,34,323	10	5"

The improvement of Coringa harbour will cost Rs. 6,28,389. The river above the port is to be straightened, to scour the passage. The expense will be in the new excavations, and the bunds across the old channel. The Lighthouse on Hope's Island also is to be raised 20 feet.

The improvement of Cocanada Harbour will cost Rs. 84,639. The mouth of the Cocanada shifts. To remedy this inconvenience a new channel was cut in 1848, and a groyne commenced to defend the new outlet. The works however were suspended, and the river returned to the old passage. They have been recommenced, and will be continued so as to obtain 6 feet on the bar at low water. "The bulk of the estimate is accordingly for lining the banks of the river with stone, for a length of 2,100 yards, between the mouth and the towns of Cocanada and Jaganaikpoorum." In January, 1854, 750 boats passed through the Dowlaiswarum lock, and in January, 1855, 896. The value of cargoes in 1854, was Rs. 55,125 and in 1855, Rs. 1,84,757. There are 6 officers of whom 5 are experienced in the Rajahmundry district, 13 Overseers, and 2 Surveyors. Labour is plentiful, and the organization of the department so excellent that there is no difficulty in carrying on any extent of works.

The bridge over the Kistnah Anicut at Bezoarah will cost Rs. 1,99,931. The stream is too rapid for an arched bridge. A platform bridge on wooden supports is therefore recommended. The passage is now unsafe even for the post, and though a steam ferry would be an improvement, it would be useless in the dry weather. "The total length of the bridge is 1416½ yards and its height above the Anicut is 18½ feet. The bays are in number 203, being 20 feet in breadth, except at the ends where they diminish to 15 feet over the sluices."

The "high level channel from the Boodemair to Perikeed, and from Perikeed to Dendaloor, beyond Ellore," will cost Rs. 2,14,385. This work is an extension of the Kistnah Anicut

Works. It also unites the Kistnah with the Godavery system of navigable canals. The country through which the canal will pass is unfavourable to communication by road. No road has ever been made.

The "high level channel from the Poolairoo, near Weyoor, to the canal basin at Masulipatam," will cost Rs. 2,37,107. "This project is similar in character to the Ellore Canal, that is, it provides for cutting a channel on the highest practicable level relatively to the Anicut, for the irrigation of land on both sides, and at the same time for communication between Bezoarah and Masulipatam."

The "high level channel from the Toohgauddra, near the Kistnah Anicut to the southern part of the Guntoor district to Inganampadu," will cost Rs. 1,46,787. This canal resembles the Northern canal above mentioned. The difficulty of the division is labour, though superintendence is well supplied. There are seven experienced officers, ten experienced Overseers, and four qualified Surveyors in the Kistnah Division. The total amount allowed for the Kistnah Anicut project is Rs. 20,46,326, while the Court have sanctioned only fifteen and a half lakhs. The Board have however explained to Government that the amount stated to the Court was less by five lakhs than Captain Lake's rough estimate.

The Road between Cuddapah and Poonamallee on the way to Madras will cost Rs. 1,92,220.

In Malabar "improving the Paulghaut and Trichoor Road, constructing two bridges upon it, and forming two branch Roads in connexion with it," will cost Rs. 49,061. This road connects Coimbatore with the Cochin territory and port. Parts of the line are in order, and the great expense will be on two bridges over the Kumady, and Vaddakancherry.

The "road from Calicut, by Beypoor, Condotty, Malapoorum Angadypoorum and Manar to Munderoor, on the Trunk Road to Paulghaut," will cost Rs. 52,083. The distance, along part of which road tracks already exist, is seventy-nine miles seven furlongs. There are some tunnels, and bridges are not included in the estimate. The road pierces the heart of the Moplah territory.

The "extension of the Eastern Coast Canal. From Doogoorapatam to the Rampairoo River, commonly called the Kistnapatam backwater," will cost Rs. 1,39,665. "The distance of twenty miles, now proposed, is all that is required to place Madras in intimate connection with the town of Nellore; for, from the Kistnapatam backwater to that place, a distance of seventeen and a half miles, a direct and excellent road is now under construction, and will be completed within six months." The

indigo and native cloths of Nellore will thus at once reach Madras. The ryots object to the proposed route. The canal will be eighteen yards wide at the water surface, and twelve at the bottom.

On the Yellapoor, Seerces and Halandee Road circuits Rs. 34,996 will be expended. This has been sanctioned, and the circuits measuring 430 miles are gradually to be worked up to first class roads. The price does not include the bridges. Rs. 1,00,000 are placed in the Budget to the operations for opening the navigation of the Upper Godavery. Rs. 50,000 was granted by Government for the operations, and Rs. 56,717 for removing rocks and other obstructions. Lieutenant Haig "has strongly represented the necessity of allowing additional funds for the prosecution of his expedition, which has been organized on a scale suitable to the extent of the contemplated operations, and the necessary difficulties of working in a wild and unhealthy part of the country. Besides the Civil Engineer, there are five Commissioned Officers, some uncovenanted Assistants, and several Overseers employed with the expedition." The first object of the expedition is to procure an accurate survey of the river, and an estimate of the outlay required.

The "Bridge over the Ponyar river on the Southern Coast Road, immediately north of Cuddalore" will cost Rs. 50,000. This bridge is on the line of communication between Cuddalore and Pondicherry, and the bridge will complete the communication.

The bridge across the Hurdree at Kurnool will cost Rs. 30,744. This bridge will connect Kurnool with its suburbs.

The "Bridge over the Coleroon, on the Southern Road between Chellumbrum and Sheally," will cost Rs. 1,30,000. Of this sum Rs. 92,000 is provided from Pagoda funds. It has been sanctioned by the Madras Government. The bridge consists of forty arches of fifty feet span. The anicut across the Huggry near Yeparal will cost Rs. 1,13,841. This work will irrigate only a small tract of land at present waste, but it is necessary to secure the revenue at present obtained. Its influence may hereafter be extended.

On 30th March, J. D. Bourdillon, Esq. Secretary to Government of Fort St. George in the Department of Public Works submits statements of works to be completed in 1855-56. The works in No. I. are beyond the competence of the Madras Government to sanction. This statement includes the works above noticed in detail. Statement 2 exhibits the works sanctioned, the estimates for which amount to Rs. 75,50,165. Up to the end of the current official year Rs. 32,84,498, will have been expended. The amount for the ensuing year is Rs. 34,49,704. The total estimated cost "of works other than repairs, proposed

to be under execution wholly or in part, during the ensuing year under this Presidency, amounts to Rupees 1,01,65,546 ; of which amount Rupees 32,34,498 has already been expended, and Rupees 51,59,179, it is proposed to lay out this year, leaving Rupees 17,21,769 for future years." Mr. Bourdillon recapitulates the facts quoted, and adds tables describing nature of work, for which expenditure has been sanctioned of which the following is an abstract :—

DISTRICTS.	Total Estimate sanctioned.	Amount already authorized to be expended.
1	2	3
<i>Works under the Board of Revenue, D.P.W.</i>	<i>Rs.</i>	<i>Rs.</i>
1 Ganjam, ...	2,58,332	1,41,629
2 Vizagapatam, ...	1,53,303	46,000
3 Rajahmundry, ...	1,70,287	1,06,000
4 Masulipatam, ...	11,11,849	7,00,000
5 Guntoor, ...	6,85,334	5,50,000
6 Nellore, ...	2,61,572	2,10,660
7 Cuddapah, ...	39,000	20,000
8 Bellary, ...	1,94,999	1,07,520
9 Kurnool, ...	1,25,426	1,07,160
10 Canara, ...	1,87,944	1,18,566
11 Chingleput, ...	4,15,016	90,343
12 North Arcot, ...	7,76,647	2,02,427
13 South Arcot, ...	1,85,524	1,06,000
14 Salem, ...	17,274	.....
15 Trichinopoly, ...	1,19,330	72,000
16 Tanjore, ...	2,43,416	1,70,192
17 Coimbatore, ...	1,12,097	96,171
18 Malabar, ...	52,800	30,312
19 Madura, ...	38,577	.....
20 Tinnevely, ...	91,601	31,989
21 Upper Godavery, ...	1,06,717	30,000
22 Madras, ...	38,176	15,000
Total,...	53,85,221	29,51,969
Works under the Military Board, ..	12,71,150	12,71,150
Works under the Superintendent of Trunk Roads, }	8,93,794	....
Grand Total, ..	75,50,165	42,23,119

Amount already expended.	Amount to be authorized for the year 1855-56.	Further amount that will be required for completion.	REMARKS.
4	5	6	7
Rs.	Rs.	Rs.	
96,243	1,33,391	28,698	
44,000	1,09,303	.....	
88,000	82,287	.....	
6,20,000	4,24,205	67,644	
4,60,000	2,25,334	.....	
1,69,505	92,067	.....	
20,000	19,000	.....	
25,000	1,69,999	.....	
25,000	1,00,426	.....	
65,829	1,22,105	.....	
78,000	1,42,148	1,94,868	
1,86,221	3,69,150	2,21,276	
71,000	1,14,524	.....	
.....	17,274	.....	
70,000	49,330	.....	
1,41,000	1,02,416	.....	
60,000	52,097	.....	
30,312	22,438	.....	
.....	32,038	6,539	
29,710	59,031	2,859	
30,000	76,717	....	
.....	38,176	.....	
23,09,830	25,53,506	5,21,884	
5,64,161	5,16,996	1,89,602	
3,60,507	3,79,202	1,54,085	
32,34,498	34,49,704	8,65,571	

On the 1st June, Col. Baker, Secretary to the Government of India, Department of Public Works, commends the execution of the Madras Budget, asks for a skeleton map of the Presidency showing all communications, works, &c., and complains of some indistinctness in the manner in which the canal question is treated. "A canal might be a profitable work if it would both irrigate completely a certain tract of country, and be available as a sufficient line of inland navigation between two places ; which yet might not be a profitable work if confined only to one of these objects ; whilst, at the same time, it might be impossible to attain both. In such a state of things, it is waste of public money to make any canal at all : but if the authority which has to determine the question, judges on a vague impression that irrigation and navigation are both good things, and both obtainable by canals, wherefore every canal must have credit given to it for both these things, that authority is very likely to come to a mistaken determination." The canals however are sanctioned, or favourably submitted to the Court of Directors. Nos. 12 and 13 however, must await subsequent consideration. No. 22 is too vague. Col. Baker proceeds to communicate sanction for works under one lakh, points out clerical errors in Statement 2 and is surprised that the Budget should have been communicated to the press while under consideration. That course is irregular and undesirable.

Extracts are added from Notes by Col. Baker. That officer observes that navigation and irrigation are not always compatible. "A Trunk Canal carrying a large volume of water for the supply of branches, such for instance as the upper parts of the Ganges and Jumna Canals, may always be usefully employed for navigation, but of small or branch canals, if used to their utmost capabilities as irrigating machines the supply is too fluctuating to admit of steady navigation, and if in order to secure a certain depth of water, recourse be had to dams or locks in the bed of the canal, the general fall of the canal is diminished, the velocity of the stream is checked, and the 'discharge' or irrigation supply is injuriously curtailed." He remarks that the waterway of the Ponyaur Bridge is insufficient, as is the case also in the Nugguram aqueduct. On the 1st June, Government recapitulates the works sanctioned, and calls the attention of the Board to Col. Baker's opinions and remarks. The works sanctioned are thus condensed :—

	Rs.	As.	P.
"No. 4. Irrigation works in the Delta of the Godavery, ...	3,15,932	0	8
" 7. Bridge across the Kistnah, ...	1,99,930	15	9
" 5. Improvement of Coringa Harbour, ...	62,838	12	0
" 6. Do. of Cocanada Harbour, ...	84,639	2	11
" 14. Palghaut and Trichoor roads and bridges, ...	49,060	15	0
" 15. Calicut to Palghaut road, ...	52,083	7	3
" 17. Roads in Canara, ...	34,996	8	0
" 19. Bridge over the Ponyaur, ...	50,000	0	0
" 20. Do. the Hindree, ...	30,743	12	8
" 21. Over the Coleroon, ...	1,30,000		
" Deduct Pagoda Funds, ...	92,000		
		38,000	0 0
" 23. Completing and strengthening the flooring of the Nagarum aqueduct, ...	36,112	0	7
" 25. Adyar and Palaur canal, ...	2,21,872	13	4
		11,76,210	8 2
" 24. Construction of Stone Groins near Clive's Battery, ...	43,037	3	3
		12,19,247	11 5

SURVEY OPERATIONS IN ROHILCUND.

ON 11th May, 1848, the Government of the North West Provinces resolves that certain portions of land shall be surveyed viz. :—

	Square miles.
Shahjehanpore, ...	864
Bareilly, ...	953
Mooradabad, ...	697
Bijnour, ...	656
Saharunpore, ...	1092

In survey will be checked by triangulation. In Rohilcund, the survey will embrace the resurvey of villages which were incorrectly surveyed. "The laying down from the old survey and the demarcation, in correspondence with the Revenue Officers, of the boundaries of all jungle tracts belonging to Government, and of all villages adjoining the jungle. The formation of the Government forest land into convenient allotments for grants, each of which should be named and numbered, and the boundary marked off on the ground in some permanent manner, and separately mapped. The laying down with accuracy the course of all streams, both large and small, the limits of basins of drainage, and the site of all existing works for irrigation, with the position and extent of the watered land. The formation of pergunnah maps on a scale of one mile to an inch, showing the vil-

lage boundaries and sites, and the geographical features of the country." The forests will also be mapped out.

On 21st February, 1850, Captain H. L. Thuillier, Deputy Surveyor General reports to Government, North Western Provinces, on the Survey Operations carried on in consequence of this resolution in the Rohilcund Division. Lieutenant Vanrenen and establishment left Nussereabad on 24th October. The establishment was divided. Lieutenant Burgess with his party taking the Delhi district, and Lieutenant Vanrenen, Shahjehanpore and Bareilly. The work done may be thus described :—" Three pergunnahs of Bareilly, comprising 152 villages and 354½ square miles, surveyed mouzahwar, and complete. One pergunnah of Shahjehanpore, 533½ square miles in area, the exterior circuit only surveyed. The forest portion, comprising four allotments of Government lands, with 64 adjoining villages, have been defined approximately, and kucha pillars built, to be replaced by masonry ones, when the existing disputes are settled. A series of levels have been taken in these pergunnahs, viz. four circuits extending, from their southern boundaries to the foot of the line of springs, 437½ square miles. Another series of levels carried through the Chukkata and a portion of the Kotah Bhabur Province of Kumaon, comprising three circuits over an area of 233 square miles. The above detail comprises all that Lieutenant Vanrenen has included in his returns for the season, amounting in the aggregate to 10 pergunnah circuits, 7 circuits of levels, 282 village circuits, and 3,409½ square miles, of which 670½ consist of levels, the total expense being Co.'s Rs. 34,372-9-5, yielding a general average of Rs. 10-3-7 per square mile, or Rs. 12-11-8 on the circuit work only, thus leaving a saving to Government, from the annual maximum sanctioned, of Co.'s Rs. 3,839-6-7, which is in excess by Rs. 1,326-1-4 of the previous season." Moreover a circuit survey of five pergunnahs in Bareilly was made for an object which proved unattainable. The Nynee Tal Settlement was surveyed, and 46 estates mapped out. No report had been received but three pergunnahs of Bareilly were ready. "A survey of the entire Uslee Pergunnah Circuit of 538 square miles was made, as Lieutenant Vanrenen states, under a misconception." This work is unsatisfactory, the cause of failure being the vast extent of the circuits. The forest lands of this pergunnah have been surveyed, and the villages adjoining. The boundaries of the forest tracts remain to be fixed. The survey of the Nynee Tal Settlement has been made. Captain Thuillier proceeds to notice the services of individuals, and remarks that the expenditure for elephants and bildars requires sanction.

Lieut. Vanrenen reports in detail the facts summarized above.

On (date not given) Captain Thuillier reports on the proceedings of the succeeding year 1849-50. An area of 1638½ square miles had been surveyed "comprising fifteen pergunnahs and 747 village-circuits in the Delhi, Shahjehanpore, and Bareilly Districts, at an outlay of Co.'s Rs. 35,358-14-10, or at an average rate of Rs. 21-9-4 per square mile. This is not inclusive of the contingent charges for cooly labour in cutting the jungle in the forest grants, amounting to Rs. 1,405-3-1, and for elephant feeding Rs. 1,278-13-5. These expenses, however, are indispensable in such a country, although not provided for by the annual maximum sanctioned by Government. If added to the above-mentioned sum, the average rate will be brought up to Co.'s Rs. 23-3-7 per square mile, and the total expenditure is still within the sum allowed, the savings under other heads being more than sufficient to meet the contingencies." The work costs Rs. 8-13-5 more per square mile than that of the former year, but is more minute. The extent of work done, at the cost, is pronounced satisfactory. An excellent map of the 22 forest grants has been submitted. The average area of these forest allotments is 3433 acres. A mouzahwar Survey of pergunnahs Kauber, Sirsanwah, Chowmellah, Richuh, Jehanabad, and Mina Joondee has been submitted and the maps prepared. The maps are unusually good. Captain Thuillier quotes Lieutenant Vanrenen's explanation of the previous year's apparent shortcomings, and considers it sufficient. The map prepared of Nynsee Tal is very creditable, and certain additions specified by the Lieutenant Governor may readily be made. Captain Thuillier proceeds with remarks on this map, and states that statistics from each village of Shahjehanpore and Bareilly were collected in 1848. They were therefore not collected again. Lieutenant Vanrenen considers his establishment insufficient. In reply to a requisition he supplies details of proposed increase. This will increase the expense from 3029 a month to 3164 but the establishments might be divided between Lieutenants Vanrenen and Burgess.

Lieuts. Vanrenen and Burgess again detail the work above summarized. Mr. E. W. Hoppner, Assistant Surveyor, also reports on his operations in pergunnah Poorunpore Suban of Shahjehanpore. This is forest land. The Zemindars were ordered to put up boundary pillars between their estates and Government forest land. They were unwilling, and included the entire jungle within the bounds of each conterminous village. The Government forest land therefore disappeared. A meeting of Collector, Revenue Surveyor and Zemindars was therefore held, and "the surveyor was authorized to define the limits of the Government forest by straightening the boundaries as far as practicable, in accordance with the *old professional* maps, and with

reference to the area of each tract." Earth pillars were put up, and the survey postponed to the next year. In 1850, it was recommenced, and numerous discrepancies and difficulties discovered in the old maps, all detailed by Mr. Hoppner. The survey commenced on 15th January, and boundaries for the allotments fixed. The whole extent of forest allotted is 118.03 square miles or 70,541.54 acres. Mr. Hoppner describes the principles on which he proceeded, "the villages adjoining the forest have been mapped separately, and the positions of the pukka pillars have been shewn on them as well as on the grants and general map; they are easily distinguishable. It was not considered necessary to alter the traverse calculations to suit the altered boundaries inseparable from the straightening of the forest bounds. In making up their areas therefore, it was only essential to adhere to that portion of the village which remained to the Zemindar, and to reject that claimed by him, and lying within the traverse circuit." The new maps differ considerably in detail from the old. The boundaries of the forests have scarcely changed. The timber is poor, and the soil not worth clearing unless it can be irrigated.

On 23rd June, Mr. J. Thornton, Secretary to Government, N. W. P. replies to Captain Thuillier. He expresses generally satisfaction with the year's operations, and cordial appreciation of Captain Thuillier's assistance.

On 21st May, 1851, Captain Thuillier submits the season report of 1850-51. After detailing the arrangements made, Captain Thuillier proceeds:—"The returns exhibit but a small superficial area in topographical and boundary work, amounting to 261½ square miles in the pergunnahs and districts, comprising 268 village circuits. The outline survey of another pergunnah (Kasheepore,) has been effected, but as the interior could not be filled up owing to the lateness of the season, no area has been returned for it. In addition however to the above, three circuits and thirteen sections of levels have been run in pergunnah Richuh, which was topographically surveyed in 1849-50, occupying two European and three native Assistants for three months. A route survey has likewise been made from Kaleedoongie to Almorah, *via* Nynee Tal, but of which no mention is made in the Surveyor's Report. This may be called therefore the *bona fide* fresh work of the season, besides which a very careful re-examination has been made of the villages in the Terai pergunnahs of Roodurpore, Kilpooree, and Gudderpore for the purpose of checking the omissions in the survey of the previous year, and of introducing the minutest details of topes, wells, gools, open glades, nullahs and footpaths, all of which have now been represented on the map. The expense of Lieutenant Vanrenen's establishment amounts to Rs. 37,976-5-10,

for the season, exclusive of a sum of Rs. 4,332-2-2, for bildars, elephants, &c., passed as a contingent charge, and independent of the fixed annual grant as sanctioned by Government." He submits a table of the cost of the work. The Terace pergunnahs are very difficult, but the resurvey has been well done. Captain Thuillier proceeds to remark on the maps, and the arrangements for carrying on the work, and adds tables which shew the following results :—

Work actually done from 1st October, 1850, to 30th September, 1851.

Profession Work, ...	Square miles, 261.73
Khusreh Work, ...	0
Money drawn, ...	Rs. 37,976 5 10
Total passed, ...	„ 38,712 0 0

Lieutenant Vanrenen supplies details. In his Report he quotes an Extract from Lieutenant Burgess on Pergunnahs Neemuch, Muttah, and Bilheree. Some portions of these pergunnahs are covered with forest, chiefly sal of great height. The drainage however is bad ; the large rivers are full of quicksands, the nullahs are so swampy as to be difficult to cross, and small springs of a red oily looking fluid ooze from the banks. The stationary inhabitants of the Pergunnahs are Tharoos, a healthy, good humoured race, who look like Tartars, and are given to ardent liquors. " Their villages consist of a broad street invariably running nearly north and south, with houses of wattles and dab, facing inwards. Their houses are roomy and apparently very clean and comfortable inside, having a verandah in front, nicely plastered, and usually covered with rude paintings."

The Tharoos will seldom take money, but like spirits, are well housed, but dread the night air. The inhabitants have more land than they can use, and care nothing about boundaries. The sickness attacked the Survey, and compelled Lieutenant Burgess to remove leaving 18 villages unfinished. Mr. Hoppner, quoted by Lieutenant Burgess, describes the survey of pergunnah Bazpore in Moradabad and 18 villages in Kasheepore. The land is frightfully unhealthy, looks desolate, and is scantily populated, but there are traces of previous cultivation.

On 5th July, Mr. Thornton replies expressing general satisfaction. On 22nd May, 1853, Captain Thuillier again reports on the operations of 1851-52. During the year, " by the united exertions of these two parties an area of 740.03 square miles in the districts has been surveyed, occasioning an expense of Co.'s Rs. 45,724-9-3, and yielding an average of Rs. 61-12-7 per square mile. It will be perceived that the rates on both the surveys assimilate very nearly. Although the average upon the circuits actually surveyed professionally on the total

comes to Rs. 165-1-1, still this can scarcely be considered a fair cost, when the peculiarities and desultory nature of the surveys, and additional duties of levelling performed, are taken into consideration." Captain Thuillier enters into some remarks on the details of the work, and expresses satisfaction with the maps. The records completed are, "2 Maps of Deoha river survey on scale of two inches to the mile, 2 Maps of Pilleebheet forest, on scale of two inches to the mile, 1 Map of city of Pilleebheet, five chains to the inch, 2 Maps of Kumaon Bhabur, 2 Maps new Poorunpore boundary, 101 Village plans in duplicate, 67 Village plans, on chudders." The map of the city of Pilleebheet is nearly ready, and very well done. Captain Thuillier proceeds to remark on the work to be done in the following year.

Lieutenants Vanrenen and Burgess supply details of the survey, summarized above. On 20th July, Mr. W. Muir replies to Capt. Thuillier expressing satisfaction, and making suggestions on points of detail.

On 29th April, the Deputy Surveyor General reports on the operations of 1852-53, "a very considerable area, amounting in the aggregate to 1257.73 square miles, has been surveyed by the joint efforts of the two parties. This area is comprised in 856 village circuits, chiefly lying on either banks of the Ganges, Ramgunga and Deoha rivers, and in large tracts of forest of the Bhabur of Kumaon, and Terai pergunnahs of Rohilcund. The total expenditure for the two establishments amounts to Rs. 57,193-2-11, which is below the grant sanctioned for the same by Rs. 3,827-10-5, as shewn. This sum thrown on the area performed, yields an average rate of Rs. 45-7-8 per square mile, which contrasts very favourably with that of the previous seasons as described in my last Report, shewing a decrease of Rs. 16-4-11 on the square mile."

"These rates are nevertheless still considerably above those of the surveys progressing in Bengal and the Punjab, but the whole of the Rohilcund operations have been tedious, most difficult and expensive." The forest survey, a very difficult one, has been well carried out.

The extent of country remaining to be surveyed is about 800 square miles.

Lieut. Burgess' return shows a total area of 495 square miles surveyed in detail, comprising 393 mouzaha belonging to no less than 15 pergunnahs of the six districts and inclusive also of the Cawnpore Cantonment Work. The total outlay for the season amounts to Rs. 26,206-12-9 which gives a general average of 52-15-1 per square mile, which is somewhat below the rate of the previous season.

"The nature and description of the work performed is specified in the leading paragraphs of Lieutenant Burgess' Report, and may be summed up as follows :—A trigonometrical survey of the Deoha river, and conterminous villages completed. The connection of the forest circuit with the station at Mochini, near Burmdeo, rendering the check over the whole of this work, which is duly connected with the Grand Trigonometrical Survey, complete. On a comparison of the direct distances deduced by this triangulation and by the Grand Trigonometrical Survey, the error is found to be 11 feet per mile. The whole of the interior of the Kumaon and Bhabur Circuit has been carefully filled in, and, considering the nature of the country, with extraordinary minuteness and fidelity.

"The forest between Captain Ramsay's new road, the limit of last year's operations, and the foot of the hills, covering 28½ square miles has been surveyed, as correctly as the nature of the ground admitted. The Bilheres forest which has been delayed since the year of its commencement, has been at last finished in a way, Lieutenant Burgess remarks, that will make the delay no matter of regret."

Captain Thuillier proceeds to remark on the details of the Survey, and the expenditure connected therewith. The Surveyor's Report is enclosed, and on 27th June, 1854, the Government expresses satisfaction, and calls for a Report from Captain Thuillier on the objects of the Survey, the manner in which it has been completed, and the means by which its results may be turned to future improvement. Similar requests were on 27th June, 1854, submitted to the Board of Revenue.

On (date not given) Captain Thuillier reports on the Survey for 1853-54. During this season "both the establishments having been raised during the previous season to the full or double strength, a much larger area has during the period in question been effected, the results of the two parties aggregating 2376 square miles, at a general cost of Rs. 74,367-11-4, the grant sanctioned by the Government of India, which shews a small saving to Government of Rs. 680 only. The comparative results of the two seasons' operations will stand as follows :—

District.	Name of Surveyor.	Area sur- veyed.	Total cost.			Average rate per square mile.		
		Sq. miles.	Rs.	As.	P.	Rs.	As.	P.
Rohilkund, ...	Captain Vanrenen,	1034	37,020	0	6	35	12	8
Bundelkund,...	Lieut. Burgess, ...	1342	37,347	10	10	27	13	3
Total, ...	{ 1853-54, ...	2376	74,367	11	4	81	12	11
	{ 1852-53, ...	1257	57,193	2	11	45	7	8
Difference, ...	... ..	× 1119	× 17,174	8	5	—13	10	9

He reviews the details of the work performed, and supplies the following Table of the time and money expended on the Rohilcund Survey :—

<i>Seasons.</i>	<i>Total square miles.</i>	<i>Total cost.</i>	<i>Average rate per square mile.</i>
1848-49, ...	2,587-27	34,872 9 5	13 7 8
1849-50, ...	1,638-29	35,358 14 10	21 9 4
1850-51, ...	261-78	37,976 5 10	145 1 5
1851-52, ...	412-88	28,016 15 4	67 13 8
1852-53, ...	762-71	30,986 6 2	40 10 2
1853-54, ...	1,034-32	37,020 0 6	35 12 10

Total and average cost, ... 6,697-20 2,04,231 4 1 30 7 10

Captain Thuillier considers it impossible to give fuller information on the results of the survey. Captain Thuillier remarks that he is preparing a series of maps on the Eastern division, and promises the local maps of Rohilcund. The remainder of the correspondence contains information of the details connected with the Survey, and on 16th July, the Lieutenant Governor reviewing the proceedings declares the Survey minute and accurate, and most creditable to the officers employed.

INDIAN TREATIES MADE SINCE 1834.

Abstract of Return of all Treaties and Arrangements with the Native States of India, since 1st of May, 1834, ordered by House of Commons to be printed, July 8th, 1856.

ARABS. June 1st, 1843. The Chiefs of the Joasmee, Beni Yas Boo Falasa, Amulgavine and Ejmaun Tribes on the Arabian Coast, bound themselves to a mutual truce of ten years, and agreed to refer all disputes to the British Resident in the Persian Gulf or the Commodore of Bassidore. At the expiration of the truce notice to be given of any intention to renew hostilities.

April 17th, 1838. The Chief of Ras-ool-Khymah grants to British cruisers, the right of searching all the vessels on the high seas, suspected of being slavers, and of confiscating all vessels proved to be such.

July 3rd, 1839. The Saikh of the Joasmee Tribe, granted a similar right in reference to all vessels found "beyond a direct line drawn from Cape Delgado, passing two degrees seaward of the Island of Socotra, and ending at Cape Guadel." Except in

cases when the vessel should be driven beyond this line by stress of weather the sale of Somalee slaves is declared piracy. In the same month, a similar agreement was signed by Saikh Khalifa Bin Shukhboot, Saikh Makhtoom of Debaye and Saikh Abdoolah Bin Rashid of Amulgavine.

April 30th, 1847. The Chief of Ras-ool-Khymah and Shargah prohibited the exportation of slaves from the African Coast in vessels belonging to him or his subjects, and consented to the right of search and to the confiscation of slavers. In April and May, the Chiefs of Debaye, Ejman, Amulgavine, Aboothabee and Bahrein entered into precisely similar engagements.

On the 22d of May, 1849, the Chief of Sohar engaged as above.

January 23d, 1838. The Sultan of Lahej entered into a preliminary agreement for the transfer of Aden to the British Government within two months. 2d and 4th. February, 1839, the Sultan of Lahej and Captain S. B. Haines of Indian Navy signed a Treaty of Friendship and Peace between the Abdallees and the English Government. On 18th June, Sultan M'Hassen of Lahej agreed in consideration of a payment of 541 German Crowns per mensem or 6,500 per annum to himself and heirs in perpetuity, to preserve peace between his tribe and the British at Aden, and "if there happen war against Abdallee or the territory of Lahej or Aden, the contracting parties will assist each other."

11th February, 1843. The former treaty with Sultan M'Hassen of Lahej having been broken, a second was entered into February 11th, 1843, with his successor, M'Hassen Foudthel. The Sultan agreed to allow British subjects to reside and hold property in Lahej, and to leave the continuance of the stipend to Captain Haines and the British Government. This engagement was not ratified, but on February 20th, 1844, the stipend was renewed on the Sultan's binding himself on oath to hold to former engagements, and to deliver up to the British any of his subjects who should infringe them, or should molest the roads leading to Aden from the interior. These provisions were confirmed by a formal treaty signed May 7th, 1849 and ratified by the Governor General in Council, October 30th, 1849. In January, February and March, 1839, Treaties of Peace were concluded with the Hazzabee, Waheel, Hagrabee, Abbadee, Maidee, Zaidde, Subees, Yaffaacs, and Sherzebee tribes, and in May, 1853, the Amulgavine, Ejman, Debaye, Beni yas and Joasmee Chiefs finally agreed to a complete cessation of hostilities with the British, and to the punishment of all piracies.

BAHAWULPORE. February 22d, 1833. Treaty of "Eternal Friendship and Alliance" between the East India Company and Nuwab

Mahomed Bahawul Khan, his heirs and successors. The Company never to interfere with the hereditary or other possessions of the Bahawulpore Government. The Nuwab to be uncontrolled in internal administration. The British Resident not to interfere in the internal affairs of the State. Merchants from the British dominions provided with passports to have free use of the Indus and Sutlej rivers and the Bahawulpore roads. The duties on such traffic to be fixed in concert with British Government, and never to be deviated from. The Tariff as above fixed to be published, and the Bahawulpore revenue farmers are not to detain the passing trade "on pretence of waiting for fresh orders from their Government or any other pretext." The Tariff is not to interfere with the inland transit dues levied by the State of Bahawulpore. There shall be river customs stations for the examination of boats at Bahawulpore and Hurrekee and nowhere else. All goods landed or embarked in the Bahawulpore territory are liable to the local transit dues. Protection will be given to all merchants showing their passports and demanding it.

Supplementary Treaty with Bahawulpore, 5th March, 1833. Instead of the Tariff on goods contemplated in the above treaty, substitutes a toll on boats however laden. A toll of Rs. 570 levied on all laden boats in transit between the Sea and Roop-er without reference to size or weight or value of cargo, the toll to be divided proportionally among the States holding territory on the banks of the Indus and Sutlej. The share of the Bahawulpore State to be Rs. 106-12-2½ on each boat. In order to the realization of the toll a British officer to reside at Mittenkote and a British Native Agent at Hurrekee Patten. The said British officer is not to interfere in any way with the affairs of Bahawulpore.

October 5th, 1838. New treaty with Bahawulpore. British Government engages to protect principality and territory. Nuwab is to act in "subordinate co-operation" with British Government, to acknowledge its supremacy, and have no connection with other States, or to enter into negotiation with them without our sanction. All disputes to be submitted to British arbitration. Nuwab will furnish British Government with troops when required according to his means. Nuwab, his heirs and successors shall be absolute rulers of their country, and British jurisdiction shall not be introduced into that principality. Ratified, October 22d, 1838.

On 11th October, 1838, a detailed tariff of river tolls leviable in the Bahawulpore territory was approved by the Governor General. On 31st August, 1840, this tariff was revised. On 11th September, 1843, the duties on boats were reduced by one-

half, a revised scale of inland duties on merchandize was agreed to, and the Government of Bahawulpore engaged to construct pukka wells and serais on the road from Bahawulpore to Sirsa towards Delhi.

CACHAR, UPPER. *October 18th, 1834.* An agreement with Toola Ram Seenaputtee. Limits the boundaries of Upper Cachar and fixes the tribute to be paid by Toola Ram. It secures to the British Government the right of placing troops in any part of Toola Ram's country, and of claiming carriage on paying for the same. All persons guilty of heinous crimes shall be made over to the nearest British Court. Toola Ram shall establish no customs' chowkies on any of the rivers bounding the country. He shall not make war on his neighbours, but if attacked shall apply to the British authorities who will protect him. He shall not prevent his ryots from emigrating, and if he fail to abide by these conditions the British Government may take possession of his country.

GUICKWAR. *18th April, 1840.* Sutte prohibited by proclamation throughout the dominions of the Guickwar, 31st October, 1844. Vessels trading between Bombay and Sind forced by stress of weather into any of the Guickwar's ports in Kattiwar exempted from duties.

HILL STATES. *Koomharsain, June 28th, 1840.* The Thakoor of Koomharsain agrees to pay the British Government Rs. 2,000 per annum—to maintain inviolate all Jagheers—to abolish all oppressive cesses, such as taxes on justice and fines on the slaughter of goats or musk deer,—to maintain truth and justice throughout the territory, and to suppress infanticide. A Schedule of Jagheers, &c., is attached to this agreement.

JHULLAWUR. *April 10th, 1838.* A Treaty of Perpetual Friendship and Alliance concluded with the Raj Rana of Jhullawur; on the formation of that State into a separate Principality out of the Kotah territory. The British Government is to protect the Raj Rana, who in his turn is not to negotiate with any Chief or State without the sanction of the British Government. The Rana's troops are to be furnished at the requisition of the British Government. The Rana and his heirs and successors shall remain absolute rulers of the country, and the British Government shall not be introduced into the Principality. The Rana agrees to pay all his debts as specified in Schedule. The tribute of the Rana to the British Government is fixed at Rs. 80,000 per annum.

JOHANNA. Treaty between Queen of England and Sultan of Johanna. Concluded November, 8th, 1844. Ratified December 10th, 1845. The Sultan abolishes his slave trade for ever. All slavers to be seized and their crews to be punished as pirates.

The owners of slaving vessels, if consenting, to be also punished. Vessels provided with the implements of the slave trade to be treated as if actually carrying slaves. British cruisers authorized to seize slavers, and also to seize all vessels unprovided with the Sultan's Port Clearance. All vessels so seized to be adjudicated on by the nearest British Vice Admiralty Court. The slaves to be liberated and the property to be divided equally between the Sultan and the British Government.

June 3rd, 1850. Treaty of Perpetual Peace and Friendship between the Queen of Great Britain and the Sultan of Johanna. Reciprocal freedom of commerce between the two potentates, the subjects of one being entitled to reside in the dominions of the other, to trade on the same terms as the natives, and to enjoy all privileges which may be granted to other foreigners. Protection shall be given to all vessels and their crews, wrecked on the Coast of Johanna. Each contracting party may appoint consuls to reside in the ports of the other. With reference to the former treaty for the suppression of the slave trade the cruisers of the Honourable E. I. C. shall be entitled to act in all respects as the cruisers of Her Britannic Majesty.

KATTYWAR. November 22nd, 1834. A proclamation for the suppression of Infanticide in the Kattywar States.

JOONAGUR. January 3rd, 1838. The Nuwab engages to suppress Sutte within his dominions.

BHOWNUGGUR. 8th September, 1840. The Thakoor in consideration of an annual payment of Rs. 6798-6-5, to himself and heirs abandons all claim to land or sea customs, or any other duties of any description at Gogo, and relinquishes the right of coinage. In 1846-49 the Chiefs of Bhownunggur, Joonagur, Nowanuggur, Parbunda, and Jafferabad agree to exempt from duties all vessels putting into their ports from stress of weather.

KELAT. October 6th, 1841. Meer Nusseer Khan acknowledges fealty to the throne of Cabul, concedes to British or to Cabul troops the right of occupying positions in the territory, the Khan will always be guided by the advice of the British Agent at the Durbar; will protect merchandise passing through his dominions, and charge no higher toll than the British Government may agree to, and will hold no political communication with foreign powers without consent of the British Government and of His Majesty Shah Soojah of Cabul. The trade of Kutchee and Moostung to be restored to the Khan, and the British Government engages to protect him against open enemies.

May 14th, 1854. A new treaty. The above treaty is annulled. Perpetual Friendship between the British Government and the Khan, his heirs, &c. The Khan, his heirs, &c. will oppose to the utmost all enemies of the British Government and will

enter into no negotiations with foreign States without consent of the British Government. British troops may be stationed in any part of the Khan's territories. The Khan will protect all merchants passing through his territories between the British dominions and Afghanistan, whether by way of Scinde or by Sonmeanee or other seaports of Mekran, and will levy no duties beyond those agreed on by British Government. In consideration of these services the British Government binds itself to pay the Khan, his heirs and successors an annual subsidy of Rs. 50,000, to be withheld on the nonfulfilment of the conditions.

Ratified by Governor General in Council, June 2nd, 1854.

KOTHAPOOR. *March 11th, 1841.* Proclamation from the Rajah prohibitory of Suttee.

KOTAH. *April 10th, 1838.* Treaty with Rajah. The Maha Rao assents to repeal an article in treaty of Delhi of 26th December, 1817 which had secured to Raj Rana Mudun Singh the administration of the Kotah territory. He cedes certain pergunnahs to Raj Rana Mudun Singh, and agrees to fulfil the pecuniary obligations arising out of the present arrangements of separation and transfer. He agrees to pay the tribute hitherto paid by the Kotah state minus Rs. 80,000 per annum to be paid by Raj Rana Mudun Singh.

He agrees to maintain an auxiliary force to be commanded and paid by British officers, at a maximum cost of three lakhs per annum.* But the existence of this force shall not diminish the Maha Rao's right to the internal administration of his dominions.

KUTCH. *September 20th, 1832.* Former treaty of 21st May, 1822, modified. All arrears due to British Government under former treaty remitted. Annual payment of 88,000 Ahmedabad Siccas on account of Anjar also remitted. The Rao agrees to pay regularly the sum appropriated by treaty of 1819 for support of Kutch subsidiary force. Should the amount required for the British force fall below 88,000 Ahmedabad Siccas, the Rao will still keep his annual payments up to that sum. All former engagements unaffected by present treaty to remain.

July 5th, 1834. The minority of the Rao is to cease on the 8th July, 1854. The ex-Rao Bharmuljee is not to interfere in any way with the Kutch Government.

February 6th, 1836. A proclamation prohibitory of the Slave Trade in Kutch.

March 23rd, 1840. The Jhareeja Chiefs of Kutch enter into a renewed engagement, renouncing Female Infanticide.

Oct. 8th, 1851. The Rao of Kutch exempts vessels belonging to the ports of Bombay, of His Highness the Gaekwar and of the Chiefs of Kattywar from payment of duty on goods when

* In September, 1844, reduced to two lakhs.

driven into Mandvee or any other of the ports of Kutch by stress of weather.

MAHEE AND REWA KANTA. *Ahmednuggur, 18th February, 1836.* The Maharajah on condition of the restoration of his throne and kingdom engages to abide by the former agreement of 1812, to renounce the ceremony of Suttee for himself, his children and his posterity, to appoint a minister to be approved of by the British Government, to pay the tribute due by him to the Gaekwar. To maintain no Arabs or other armed retainers, to refer all internal disputes to the British Political Agent, and to give no shelter to his late minister, Madhajee Soobahoot, guilty in the late affair of the Suttee.

LOONAWARA. *April and May, 1840.* The Chief of Loonawara, the Raja of Baria, the Chief of Bhadurwa, the Maharavul of Chota Oodeypoor and the Rajah of Rajpeepla all sign agreements to prohibit Suttee.

KUTCH. *August 18th, 1842.* The Rajah of Rajpeespla issues a proclamation prohibitory of Suttee.

SONTH. *12th May, 1840.* The Rajah promises to prohibit Suttee.

WANKANEER. *12th May, 1846.* The Thakoor makes similar promise.

LAHORE Treaty of 12th March, 1833 between Maharajah Runjeet Singh and Shah Soojah Ool Moolk. The Shah disclaims all title to the territories on either bank of the Indus in possession of the Maharajah. The Khyberees to be restrained from robberies, and all revenue defaulters on either side to be given up. No one to cross the Indus or the Sutlej without a passport from the Maharajah. The Shah will abide by any arrangements which the Maharajah may make with the British Government regarding Shikarpore. The Shah and the Maharajah to interchange presents and address one another on terms of equality. Each sovereign to give protection to traders subjects of the other. When the armies of the two States shall be assembled at the same place, there shall be no slaughter of kine. Should the Maharajah lend the Shah an auxiliary force, all booty to be equally divided. Should the Maharajah need an auxiliary force the Shah shall supply it. The friends and enemies of the one party shall be the friends and enemies of the other. The treaty to be binding for ever.

24th January, 1835. Supplementary treaty between British Government and Maharajah Runjeet Singh provides for a toll on goods and boats passing up and down the Indus and Sutlej.

26th June, 1833. Tripartite treaty of Lahore between British Government, Runjeet Singh and Shah Soojah. This treaty adds four Articles to the above noted treaty between Runjeet Singh and Shah Soojah of March 12th, 1833; viz. Shah Soojah

engages after the attainment of his object to pay the Maharajah two lakhs of Nanuk Shahee Rupees in consideration of a force of 5,000 Mussulman Cavalry and Infantry to be stationed by the Maharajah in the Peshwa's territory for the support of the Shah, and to be sent to the Shah's aid whenever the British Government shall deem it necessary. The annual payment of this sum to be secured by the guarantee of the British Government. Shah Soojah relinquishes for self and heirs all claim to Scinde, on consideration of the payment to him by the Ameers of a sum to be determined by the British Government. Fifteen lakhs of such sum to be made over by the Shah to the Maharajah. When Shah Soojah is established in his Government he is not to molest his nephew, the ruler of Herat. Shah Soojah will enter into no engagements with foreign states without knowledge of British and Sikh Governments.

9th March, 1846. Treaty between British Government and State of Lahore. Perpetual peace between British Government and Maharajah Dhuleep Singh, his heirs and successors. The Maharajah renounces all claim to territories south of Sutlej. Cedes to British Government in perpetual sovereignty the territories between the Beas and Sutlej forming the Jullunder Doab, and between the Beas and Indus, including Cashmere and Hazarah. The Maharajah to pay to the British Government 50 lakhs of Rupees. The mutinous troops of the Lahore army to be disarmed and disbanded. The regular regiments to be reorganized according to Runjeet Singh's system. The army to be limited to 25 battalions of infantry of 800 men each and 12,000 cavalry. The 36 Guns used against the British troops and not captured at Sobraon to be surrendered. The control of the ferries on the Beas, Sutlej and Lower Indus to rest with the British Government, but half the net profits of the ferries to be paid over to the Lahore Government. The troops of the British Government shall have right of way through any part of the Lahore territories and shall receive supplies of every sort on paying for the same. The Maharajah not to retain in his service any British subject or subjects of any European or American State without consent of the British Government. The Maharajah to recognize the sovereignty of Goolab Singh in such territories as may be assigned to him by the British Government, and the British Government in consideration of Goolab Singh's good conduct recognizes his independence in his own possessions, and admits him to the benefit of a separate treaty. All disputes between the Lahore State and Goolab Singh to be referred to the British Government for adjustment. The limits to the Lahore territories not to be changed without the concurrence of the British Government. The British Government will not interfere in the

internal administration of the Lahore State, but will give its advice and good offices in all cases which may be referred to it. The subjects of either State shall, on visiting the territories of the other, be on the footing of the subjects of the most favoured nation.

11th March, 1856. Articles of agreement between British Government and Lahore Durbar. The Lahore Government having asked the Governor General to station a British force at Lahore for the protection of the Maharajah pending the reorganization of the Lahore army, and certain matters regarding the territories, ceded in the fore noted treaty, requiring further settlement, the British Government agrees to leave a British force at Lahore till the close of the current year and no longer—this force to be placed in full possession of the citadel of Lahore, and provided with convenient quarters at the expense of the Lahore Government, which Government shall also pay all other extra expenses incurred by the detention of the troops at Lahore. The Lahore Government is to apply itself at once to the reorganization of the army, and should it fail to do so the British Government is any time at liberty to withdraw the British troops. The British Government agrees to respect all bona fide jagheers belonging to the families of the late Maharajah Runjeet Singh, Kurruck Singh, and Shere Singh and lying in the territories ceded by the treaty. The British Government will aid the Lahore Government in recovering the arrears of revenue due from their Kardars and managers in these ceded territories. The Lahore Government may remove from the forts in the ceded territories all treasure and State property excepting guns, but the British Government may retain any part of such property on paying for it. Commissioners to be immediately appointed to lay down the boundaries between the British and Lahore States.

TREATY AT UMRITSUR, March 16th, 1846, between the British Government and Maharajah Goolab Singh. The British Government in consideration of a payment of 75 lakhs "transfers and makes over for ever in independent possession to Maharajah Goolab Singh and the heirs male of his body" the country east of the Indus and west of the Ravee including Chumba and excluding Lahoul. The eastern boundary of this territory to be laid down by special Commissioners. The limits of the Maharajah's territories not to be changed without the concurrence of the British Government. The whole military force of the Maharajah to join with the British troops when employed in the hills. The Maharajah never to employ any British subject or the subject of any European or American State without the consent of the British Government. The British Government will aid the Maharajah in protecting his territory from external enemies. The

Maharajah acknowledges the supremacy of the British Government and will testify such recognition by annual presents.

December 16th, 1846. Agreement between British Government and the Lahore Durbar. The Durbar having solicited the British Government to give its aid in the administration of the Punjab during the minority of Dhuleep Singh, such aid is given under new articles of agreement. The treaty of March 9th remains binding except as to the Clause which prohibits the British Government from interfering in the internal administration of the Lahore State. A British officer with supreme power is to be stationed at Lahore. The administration shall be conducted according to the national feelings and customs. Changes in details of administration shall be avoided, except when necessary, and all details shall be conducted by native officers, under a native Council of Regency acting under the control of the British Resident. This Council of Regency shall conduct the administration of the country in consultation with the British Resident. A British force, of strength to be fixed by the Governor General, to remain at Lahore to protect the Maharajah and preserve peace. The British Government may occupy any fort or post in the Punjab deemed necessary for the security of the capital or the maintenance of peace. The Lahore State shall pay the British Government 22 lakhs of new Nanuck Shahee Rupees per annum for the maintenance of this force. A lakh and fifty thousand Rupees per annum placed at the disposal of the Maharanee, Dhuleep Singh's mother. These provisions to have effect until the 4th September, 1854, when Dhuleep Singh will attain the age of 16 and no longer; and the arrangement to cease before that time if the Governor General and the Lahore Durbar shall be satisfied that British interference is no longer necessary.

March 29th, 1849. Terms granted by the East India Company to Maharajah Dhuleep Singh and accepted on his behalf by the Council of Regency. The Maharajah resigns for himself and heirs all claim to the sovereignty of the Punjab. All the property of the Lahore State is confiscated to the British Government. The Kohinoor diamond surrendered to the Queen of England. His Highness Dhuleep Singh to receive from the Honourable East India Company for the support of himself, his relatives and the servants of the State, a pension not exceeding four and not less than five lakhs of Company's Rupees per annum. He is to be treated with all respect and honor, to retain his title of Maharajah Bahadoor and to continue to receive for life such portion of the above named pension as may be allotted to him personally, provided he shall remain obedient to the British Government and reside at such places as the Governor General may select.

MUSCAT. *May 31st, 1839.* A treaty of commerce between the Queen of England and the Sultan Imaum of Muscat. It provides for mutual freedom of residence and trade. The houses of British subjects in the Muscat territory shall not be entered or be searched, without the consent of the occupier, or the cognizance of the British Consul or Agent. Each nation may appoint consuls to reside in the other's dominions whenever the interests of commerce may require it. The subjects of the Sultan in the service of British residents shall enjoy the same immunities as British residents themselves, but if convicted of crime they shall be discharged from British service, and made over to the Muscat authorities. The Muscat authorities shall not interfere in disputes between British subjects, or between British subjects and the subjects of other Christian nations. In disputes between a subject of the Sultan and a British subject, if the former is the complainant the case shall be heard by the British Consul or Agent—if the latter, by an authority appointed by the Sultan; but in the presence of the British Consul or Agent or some one appointed by him. The evidence of a convicted perjurer is never to be received in any case. The property of a British subject dying in the Muscat dominions to be made over to the British Consul and *vice versa*. The property of a British subject become bankrupt in the Muscat dominions to be seized by the British Agent and paid to his creditors. Mutual aid to be given for the recovery of debts from the subjects of either country. Five per cent. to be the maximum of duty leviable on British goods imported into Muscat on British bottoms. This charge to cover all import, export and pilotage dues, and to secure the goods against all inland transit duties or additional imposts of any kind. There are to be no prohibitory duties on imports or exports, and no monopolies except in the articles of ivory and gum copal. In cases of dispute as to the value of the goods chargeable with duty the Sultan may claim a twentieth part of the goods themselves; or if that be impracticable the point shall be referred to an arbitrator on each side, who shall between them appoint an umpire whose decision shall be final. Should the Queen of England or the Sultan be at war with another country their subjects may pass to such country through the dominions of either power, with all merchandize except warlike stores. But they shall not enter any port or place actually blockaded or besieged. Mutual assistance shall be given to vessels in distress and in the restoration of wrecked property. The Sultan renews his former agreements for the suppression of the slave trade.

December 17th, 1839. A further agreement for the suppression of the slave trade.

July 22d, 1841. It was explained to the Imaum that in the

limitation of all duties to five per cent., made in the convention of May 31st, 1839, the words precluding "any other charge by Government whatsoever, were understood by Her Majesty to mean, any other charge whatever made by the Government or by any local authority of the Government." This interpretation was accepted in a counter-declaration made on the part of the Imaum on the same day ; and on that day the ratifications of the treaty were exchanged accordingly.

October 2nd, 1845. A further agreement with the Imaum of Muscat was concluded at Zanzibar for the suppression from and after January 1st, 1847, of the export of slaves from His Highness's African Dominions. The Sultan Imaum prohibits the trade under the severest penalties, and authorizes the British Government to seize all Muscat slavers.

NEPAUL. February 10th, 1855. An extradition treaty based on a system of complete reciprocity. The persons to be surrendered by either Government are those charged with "murder, attempt to murder, rape, maiming, thuggee, dacoity, highway robbery, poisoning, burglary and arson." The expenses of extradition to be borne by the Government making the requisition. Persons attached to the Residency who may commit crimes in the Nepal territory and take refuge in the Residency are to be given up. The treaty to continue in force until one or other of the contracting parties signify a wish that it shall terminate.

NIZAM. 21st May, 1853. The peace, union and friendship between the East India Company and the Nizam's Government to be perpetual and all the former treaties confirmed except as affected by this agreement. The subsidiary force hitherto furnished by the East India Company to His Highness the Nizam to be continued at its former strength and for the purpose of protecting the person of His Highness and suppressing rebellion, but not to be employed on trifling occasions or for the collection of Revenue. The Honourable East India Company agrees to maintain in lieu of His Highness's present contingent, an auxiliary force to be styled the Hyderabad contingent, to consist of not less than 5,000 infantry and 2,000 cavalry with four field batteries, to be commanded by British officers, and controlled by the British Government through the Resident at Hyderabad. The contingent shall be available when needed for the suppression of disturbances in the Company's territory and the Company's troops shall in return assist in quelling disturbances in His Highness's dominions. In the event of war the subsidiary force and contingent shall be employed as the British Government may determine, provided that 2 battalions shall always remain near the Capital of Hyderabad. And beyond the said subsidiary

and contingent forces the Nizam shall not be called on to furnish any other troops.

The Nizam assigns to the exclusive management of the British Government territory yielding an annual gross revenue of about 50 lakhs for the payment of the contingent, of the interest on his debt, and other purposes. The British Government is annually to account to the Nizam for the management of this territory, and make over to the Nizam any surplus that may remain after the payment of the contingent and the other items. A schedule of the assigned districts is appended to the treaty.

PAHLUNPOOR. *June 18th and August 15th, 1853.* The Jhareja Chiefs of Santulpore and Charchut engage to suppress Infanticide in their districts.

PERSIA. *June 12th, 1848.* A firman addressed by the Shah, at the instance of the British Government, to the Governor of Fars and the Governor of Ispahan and Persian Arabia, prohibits the export or import of slaves by sea. The slave trade by land is not prohibited.

August 1851. Convention between British Government and Persia, concedes to Her Majesty's and the Honourable East India Company's cruisers the right to search Persian vessels for slaves. The convention to be in force for 11 years from January 1st, 1852, and no longer. Approved of by Her Majesty's Government in October, 1851.

RAMPORE. *August 21st, 1850.* The Nuwab in order to preserve the harmony of his family agrees to settle certain specified sums on each member.

SATTARA. *September 4th, 1839.* A treaty supplemental to the treaty of September 25th, 1819. The Rajah abandons his claim to certain territories, assigns others to be managed by the British Government, and binds himself to make a suitable allowance for the support of his brother.

September 23d, 1839. The Rajah prohibits Suttee and abolishes transit duties.

PUNT SUCHEO. *February 3d, 1839.* A treaty explanatory of the treaty between the Punt Sucheo and the British Government of April 22d, 1830. The Punt agrees to maintain an efficient Police and to aid in the extradition of criminal refugees, makes over the administration of certain villages to the British Government, abolishes transit dues, agrees to incur no debts without the sanction of the British Government, to provide for the family of the late Punt—and to adopt the Company's Rupee as the current coin of his dominions.

SAWUNT WARREE. *September 15th, 1838.* The Sirdesace surrenders to the British Government all claim to land and sea cus-

toms in consideration of an annual payment by the British Government.

SIND. Treaty with Government of Hyderabad, July 2d, 1834, regulates the tolls on the Indus.

Treaty with Ameers of Sind, April 20th, 1838. The British Government agrees to restore friendship between the Ameers and Runjeet Singh. A British Minister is to reside at Hyderabad, and the Ameers may send a Vakeel to reside at the Court of the British Government.

KHYRPOOR. Treaty between the British Government and Meer Roostum Khan, 24th December, 1838. Perpetual friendship between the Honourable East India Company and Meer Roostum and his heirs, &c. The British Government engages to protect the principality. The Meer acknowledges supremacy of British Government, will act in subordinate co-operation with it, and will have no connection, or negotiation with other States. He will commit no aggressions, but refer all disputes to the British Government. He will furnish troops according to his means at the requisition of the British Government, and the British Government will not covet a "dam or dirhum" of his territories. The Ameer shall be absolute ruler of the country; and the British jurisdiction shall not be introduced. The Ameer will do all in his power to promote trade on the Indus. A British Agent shall reside at Khyrpoor, and the Ameer may send an Agent to reside at the Court of the British Government. Ratified by the Governor General, January 10th, 1839.

Separate Article. The British Government in time of war may occupy the fort of Bukker as a depot for treasure and munitions.

HYDERABAD. Treaty with Ameers, March 11th, 1839. Lasting friendship. A British force not exceeding 5,000 men to be maintained in Sind. All the Meers, Sobdar Khan excepted, to pay each a lakh of Rupees annually for the maintenance of the British force. The British Government undertakes to protect the territory of the Ameers from all foreign aggression. The Ameers to remain absolute rulers in their principalities, and the British jurisdiction not to be introduced. The Ameers will refer all their disputes to the British Resident. They will not negotiate with foreign States without consent of the British Government. They will act in subordinate co-operation with the British Government, and furnish when required 3,000 troops, to be paid by the British Government when employed under British officers beyond the Sind Frontier. The Company's Rupee shall be current in the Sind territories. All tolls on the Indus are abolished, but goods when landed and sold to be subject to the usual duties of the country, except when sold in a British camp or can-

tonment. Goods may be bonded at the mouths of the Indus till the proper time arrives for sending them up the river.

MEERPOOR. 18th June, 1841. Lasting friendship and alliance between the Honourable East India Company and Sher Mahomed Khan, Meer of Meerpoor. The Ameer to pay Rs. 50,000 per annum towards support of British force in Sind. The British Government to protect the Meer from foreign aggression. The Ameer to remain sole ruler in his principality, and the British Government shall not be introduced. The Meer will refer to the British Government all his disputes with the other Ameers. The Meer will not treat with foreign States without consent of British Government. The Meer will act in subordinate co-operation with British Government for defensive purposes, and will furnish a quota of troops. The Company's Rupee to be current in the Meer's territory. Tolls on the Indus abolished. Goods landed and sold may be taxed except when sold in a British camp or cantonment. Goods may be bonded at the mouth of the Indus till the period arrives for sending them up the river.

Ratified by Governor General in Council, August 16th, 1841.

SINDIA. Treaty of 13th January, 1844, between British Government and Maharajah Jyajee Rao. Former treaties to remain in force except as now altered. Revenue of certain additional districts appropriated to support the contingent. Should the revenues now and heretofore assigned exceed 18 lakhs, the surplus to be paid to the Maharajah, but should the revenue fall short of 18 lakhs the deficit to be made good by His Highness. The Civil administration of the assigned districts to be conducted by the British Government. His Highness to pay to the British Government the sum of 26 lakhs within 14 days from date of this treaty, partly for arrears of charges of contingent, and partly as compensation to British Government for expenses of the late hostilities. As the British Government undertakes to defend the Maharajah and his dominions, the Maharajah's military force exclusive of the above contingent is never to exceed 9000 men, and all troops now entertained in excess to be paid up in full and disbanded, with a three months' gratuity. The minority of the Maharajah to end, January 19th, 1853. The Government to be administered in the interim by a Council of Regency according to the advice of the British Resident. Three lakhs per annum assigned to Her Highness Tara Baee. The British Government shall as heretofore exert its influence and good offices to maintain the territorial rights of the Maharajah, and the subjects of the State of Sindia at present residing in the neighbouring and other native States.

HINDOSTAN AND THIBET ROADS.

*India Records, No. XVI.**Report on the Operations connected with the Hindostan and Thibet Roads, from 1850 to 1855. By Capt. D. Briggs, Superintendent, Hill Roads.*

IN 1850, the attention of Lord Dalhousie was turned to the practice of *Begar* or forced labour, which had prevailed in the Protected Hill States from time immemorial. When the Hill Chiefs depended solely on their subjects for defence against outside aggression, the subject was always at liberty to transfer the allegiance to a new master, and oppression was thus restrained. But the British Government by protecting the Chiefs from danger from abroad has made them too powerful at home, the natural check on oppression has been removed, and *Begar* is enforced to an intolerable extent. In 1815, the Hill Chiefs engaged in return for the aid afforded them against the Goorkas to supply the British Government with labourers, whenever they should be required, and to construct such hill roads within their Chiefships as the British Government should desire. For many years this latter condition was a dead letter, but more recently the increase of Sanitaria in the hills around Simla occasioned an extraordinary demand for labour in the erection of buildings, the construction of roads, and the conveyance of burdens. The whole of this duty fell on the scanty population of the Hill States; there was no other labour to be had. The treaty of 1815 empowered us to demand the labour from the Chiefs, and though our Government always in spite of that treaty paid the labourers liberally, yet the wages so paid were always claimed by the Chief from his sept by virtue of the right to "*Begar*." But the system of depending on portage for the conveyance of the enormous Government establishments, invalids and their servants, supplies for troops, merchandize, building materials, &c. was expensive as well as oppressive, and Lord Dalhousie resolved to construct carriage roads by which the necessity of employing human labour in the transport of baggage would be obviated. The first object was to construct a road from the plains to Simla with branch lines to the stations of Dugshaie, Kussowlie, and Subathoo. The line to Simla was to be extended towards Thibet so as to open the salubrious valley of Kunawur, and afford direct commercial intercourse with Western China, and so direct into our own provinces the trade at present monopolized by Russia. It was found impossible to incorporate in the new line any portion of the existing road from Kalka to Simla. The new road "leaves the

plains in the neighbourhood of Kalka, and gradually ascends, for 14 miles, to a gorge in the extensive range of hills which border the plains and extend from the Sutledge to the Jumna. On the left lies Kussowlee, 6 miles distant, and nearer, and overlooking the gorge, stands the Lawrence Asylum. To the right is Dugshai, close under which the road winds to the low neck of land which connects the long outer range, above mentioned, with the main body of the Himalayas. Here an abrupt spur thrown off to the eastward, at right angles to the desired direction, renders a tunnel of 1,900 feet necessary. From this the line runs to the next obligatory point near the rich valley of Solon, which it enters at a spot eminently calculated for a large European Settlement; it then skirts the southern flank of the Krolé Mountain, and running through the next obligatory point at Kundah, commences an ascent of 5 miles to Kearee Ghat, passing above the fine valley of Bhagurree. From this it runs nearly level, through the volcanic cliffs of Tara Devi, to an obligatory point within 4 miles of Simla, to which it ascends at a gradient of 1 in 25, steeper than any on the whole line, but rendered necessary by the elevated position of the Sanatorium. Two and a half miles beyond Simla, after emerging from the fifth obligatory neck, another rugged spur running to the South-East renders a tunnel of 550 feet necessary; from which the line runs at an imperceptible gradient, for 40 miles, to the Nagkunda Pass, 9,300 feet above the level of the sea. From this, skirting the Northern face of the massive Huttóo Mountain, it holds a level course to the obligatory point under Bagee; from which an easy ascent brings it to the highest point on the line at Kundrelah, which has an elevation of 9,660 feet. Descending to the obligatory Soongree Pass, it turns Northward to avoid the snow limit of the Himalayas, and seeks the valley of the Sutledge. Skirting this at a general elevation of 6,000 feet, (temporarily vitiated by the tremendous cliffs bordering the Noguree torrent,) it crosses the Sutledge River above the old bridge of Wangtoo, from which it ascends to the village of Chini, unrivalled for the beauty of its scenery and the salubrity of its climate. Gently descending in order to avoid the deep inflections of the snow-fed tributaries of the Sutledge, it runs through the rich vineyards of Barung and Akpah, until it again meets the Sutledge under the towns of Soongum and Kanum, renowned no less in the ecclesiastical history than in the commercial estimation of Thibet and Western China. Under Sapooee the line again crosses to the left bank of the Sutledge, now flowing at an elevation of 8,300 feet, and taking advantage of an old bed of that most turbulent stream. 100 feet above its present level, it emerges on the Highlands of Thibet near the Chinese village of

Shipke, from which roads as old as the people themselves run East, West, and North, traversed by baggage cattle of all descriptions."

Operations were commenced in July, 1850, in detached portions at a distance from each other. This plan was adopted in order that the *begarees* from each Hill State should be employed at that portion of the line which lay nearest their homes. It was soon found that no reliance could be placed on the engagements of the Hill Chiefs to supply labour. After various ineffectual attempts to keep them to their engagements, the Government abandoned its treaty rights, and adopted the system which has since been adhered to of paying every labourer two annas per diem; the full market rate of the North West Provinces.

The most difficult undertaking on the road from Kalka to Simla was the reduction of the cliffs which line the Western flank of the Tara Devi Mountain. One portion of 400 feet had to be cut down to a depth of 150 feet to obtain sufficient breadth of road way. The following is a statement of the work performed in opening the road from Simla to Dugshaie to a breadth of twelve feet :—

Cubic feet.

"1st.—Of hard rock reduceable only by blasting,	57,34,663
2nd.—Of slate, shingle, stones, and earth,	... 1,41,70,417
3rd.—Of revetment walls,	 8,23,893

Total Cubic Feet of work, ... 2,07,28,973"

The execution of this required 3,48,912 days' work at a cost for labourer's wages of Rs. 31,049, exclusive of the hire of artificers, &c. The expenditure per mile was Rs. 1,237. There is one viaduct of 260 feet across the face of a precipice, and there are eight American lattice Bridges of from 30 to 50 feet span. The whole was completed in 240 working days in 1850-51. Seventy-two miles of 12 feet road on the same scientific principles have been constructed between Dugshaie and Kussowlie, Dugshaie and Subathoo, and the widening of the road from Simla to the plains to 16 feet is now in progress, and masonry parapets are under erection on the crest of every precipice. Captain Briggs estimates the direct returns on the road (from tolls) at 15 per cent. on the outlay, exclusive of the indirect return from the saving to Government on the conveyance of stores and the marching of troops. Repairing expenses are estimated at Rs. 35-8 per mile per annum.

On the line between Simla and the frontiers of China 116 miles of 6 feet road are completed save two short breaks, and 60 miles of unfinished work will shortly remain between Simla and the frontier of China. The cost of these works, deducting Rs. 40,000 subscribed by four Native States, has been Rs. 77,685 or

Rs. 706 per mile. Captain Briggs then discusses at length the timber yielding capacity of the hills. At Nachar in Kunawar is a forest of 2,000 sound trees at a distance of 20,000 yards from the bed of the Sutlej, into which the trees could easily be conveyed by a sliding trough. By this means Captain Briggs undertakes to lay down at Ferozepore three lakhs worth of Timber, annually at a cost of four annas per cubic foot. He proposes before cutting the timber to secure it against insect and decay by the infusion of some antiseptic into the growing tree. It is also necessary to arrange for the purchase and protection of the Deodur forests which the Hill Chiefs are rapidly destroying, and for the planting of the hill sides with timber trees.

At Shiel, nine miles east of Kundrelah in Kunawur and near the Pabur river occurs magnetic iron ore of great richness and abundance. Millions of tons of charcoal could be procured from the forests within a radius of ten miles, and judging from a series of experiments (yet incomplete) Captain Briggs is confident that the Shiel Iron can compete with Merthyr Tydvil and Glasgow in cheapness, and beat them both in quality. The iron might be brought down the Touse in flat bottomed barges. Captain Briggs concludes with an elaborate detail of the system of accounts employed. The Appendix to the Report contains tabular statements the results of which are, as follows. The total population of the 19 "Hill States" by the Census of 1855, was 5,12,000, Bussaher the most populous containing 1,50,000. The strength of Deodur beams as compared with those of British oak is as 228 to 350. That of *Pinus Longifolia* or "*Cheet*" as 304 to 350. In a Minute in Council, dated 6th July, 1852, Lord Dalhousie expresses the highest opinion of Captain (then Lieutenant) Briggs' services on the Hindostan and Thibet Roads.

MADRAS POLICE RETURNS FOR 1855.

MR. T. G. Clarke, Magistrate and Deputy Superintendent of Police, on 4th June, submits to Lieutenant Col. J. C. Boulderson twelve tables containing Statistics of the Madras Town Police. Mr. Clarke gives a short analysis of these Returns, and of the more heinous cases of crime. The following is the abstract of cases summarily punished :—

**ABSTRACT STATEMENT of Cases summarily disposed of at the General and Town
Police Offices during the year 1855.**

Charges.	Number of Cases.	Number of persons convicted and sentenced to hard labour.	Number of persons convicted and sentenced to be flogged.	Number of persons fined.	Number of persons acquitted or discharged.	Total number of persons.
Aggravated Assaults, ...	4	...	...	4	...	4
Assaults, ...	2,735	...	7	1,048	3,860	4,915
Attempting to steal or suspected of stealing, ...	104	8	...	...	132	140
Breach of the Peace, ...	2,166	...	...	3,342	1,154	4,496
— of Police Regulation, No. 4, viz. vending Liquor or Toddy without License and smuggling under Act XIX. of 1852, ...	24	...	...	21	12	33
— of Police Regulation, No. 6, viz. using false weights and measures, ...	16	...	...	4	18	22
— of Police Regulation, No. 10, viz. furious and careless riding and driving, &c., ...	103	...	...	97	50	147
— of Trust, ...	37	2	...	...	33	35
Crimping, ...	5	8	...	...	1	9
Desertion, ...	99	20	8	...	84	112
Drawing Lotteries not authorized by Government in contravention of Act V. of 1844, Section 2, ...	5	...	...	9	1	10
Gambling, ...	17	...	...	22	7	29
Having in possession, purchasing or receiving stolen property, ...	115	2	1	8	160	171
Injuring trees, public property, &c., ...	22	3	...	22	27	52
Misdemeanors, ...	853	4	9	780	642	1,435
Nuisances, ...	1,758	...	...	2,647	666	3,313
Refusing to work, neglect of duty and disobedience of order, ...	46	20	10	...	25	55
— to maintain wife and children, ...	37	...	...	...	40	40
Snatching away by force, or taking forcible possession, ...	26	...	...	4	32	36
Swindling, cheating, and fraud, ...	2	1	...	...	2	3
Taking away or obtaining by false pretences or undue means, ...	225	130	28	3	148	309
Threatening to assault or using threatening language, ...	36	...	...	2	26	28
Trespasses, ...	174	...	...	90	124	214
Vagrants, ...	154	145	6	...	79	280
Total, ...	8,763	343	69	8,103	7,323	15,838

There were 986 cases of simple larceny in which 1,213 persons were arrested, 580 convicted, and 633 acquitted. The amount of property alleged to have been stolen was Rs. 1,155-3-8, of which Rs. 1,004 was recovered. Under the General Merchant Seamen's Act, and the Mercantile Marine Act, 46 cases were brought up, involving 142 defendants. Of these 113 were imprisoned, 5 fined, and 24 acquitted. Under the Boat Act there were 38 cases involving 104 defendants, of whom 31 were flogged, 17 fined, and 56 acquitted.

There were 1038 cases of offence among the Police, of which 897 were for neglect of duty, and 23 for corruption. Of the whole, 7 were sent to the roads, 7 flogged, 907 fined, 18 dismissed the service, 185 acquitted or 1124 in all. Of the 74 cases involving 99 persons, there were

For Murder,	...	...	...	...	2
Shooting, &c. with intent to murder,	...	...	...	...	3
Carnal knowledge of a girl under 10,	..	...	...	...	1
Uttering forged documents,	..	...	...	...	3
—false coin,	..	...	...	...	1
Kidnapping children,	...	...	...	...	2
Burglary,	...	...	...	...	3
Larceny,	...	...	...	...	45
Receiving stolen goods,	...	...	...	...	0
Stealing from person,	...	...	...	...	1
Embezzlement,	...	...	...	...	3
Breach of Trust,	..	...	...	...	3
Poisoning Cattle,	...	...	...	...	1
Aggravated Assault,	...	...	...	...	1
Obtaining on false pretences,	...	...	...	...	3
Concealing Truth,	...	...	...	...	1
Trespass and carrying away married woman by force,	...	...	...	...	1

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Of the prisoners 73 were convicted. Rs. 7,476-13-3 was alleged to have been stolen, and Rs. 3,570-6-5 was recovered.

Comparative Abstract.

	1854.	1855.
Cases, ...	12,136	10,895
Prisoners, ..	20,633	18,520
Convicted, ..	11,702	10,295
Acquitted, ...	8,931	8,245

Comparative Statement of Cases disposed of by Magistrates.

	1854.	1855.
Cases, ...	10,997	9700
Prisoners, ...	19,022	17,049
Convicted, ...	10,423	9096
Acquitted, ...	8599	7953

Comparative Statement of Seamen's Cases.

	1854.	1855.
Cases, ...	59	46
Prisoners, ...	203	142
Convicted, ...	165	118
Acquitted, ...	38	24

Comparative Statement of Boatmen's Cases.

	1854.	1855.
Cases, ...	22	38
Prisoners, ...	79	104
Convicted, ...	18	48
Acquitted, ...	61	56

Comparative Statement of Policeman's Offences.

	1854.	1855.
Cases, ...	1073	1038
Prisoners, ...	1177	1124
Convicted, ...	908	939
Acquitted, ...	179	185

Comparative Statement of Cases committed to the Supreme Court.

	1854.	1855.
Cases, ...	80	74
Prisoners, ...	147	99
Convicted, ...	97	73
Acquitted, ...	50	26
Property stolen, ...	Rs. 22,946	Rs. 7476
— recovered, ...	16,516	3570

BOMBAY POLICE RETURNS FOR 1855.

ON 28th May, 1856, Mr. W. Crawford, Senior Magistrate of Bombay, submits the Returns of Crime for the year. He reviews the cases, and notices with satisfaction the absence of gang or highway robberies from the Returns. In the previous year it appeared from the Returns that crime had increased faster than population, or 200 per cent, in ten years. The present Returns

shew a diminution in the amount of crime. The decrease in cases before the Magistrates is 11 per cent., and of persons arrested also eleven per cent. The amount of property stolen however has increased, but this is entirely the result of one great robbery of pearls.

	1855.	1854.
Number of cases reported, ..	7986	8,009
Persons apprehended, ..	13,347	15,016
Cases left undisposed of in 1854,..	12	—
Persons untried, ...	21	—
Convictions, ...	7,681	9,091
Acquittals, ...	5,668	5,938
Persons remaining untried, ..	42	45
Amount reported as stolen, Rs. 1,45,435		Rs. 1,26,666
Believed to be stolen, ...	„ 1,41,237	„ 1,22,998
Recovered, ...	„ 35,234	„ 36,561

Comparative Statement of Heavy Offences.

	1855.	1854.
Murders, ...	6	8
Manslaughters, ...	5	3
Burglaries, ...	11	10
Robberies above Rs. 50, ..	253	253
— below Rs. 50, ...	1566	1495
Attempts to poison, ...	14	11
Shooting, &c. with intent, ...	7	7
Receiving stolen goods, ...	83	57
Embezzlement, ...	7	11
Fraud, ...	32	39
Forgeries, ...	2	11
Misbehaviour at Police,... ..	13	2

Coroner's Inquests.

There were 193 inquests in 1855, against 201 in 1854. Of these :—

Murders, ...	8
Manslaughters, ...	1
Infants burned or exposed, ...	10
— still-born, ...	2
Suicides, ...	33
Justifiable Homicide,... ..	1
Lunatic Homicide, ...	1
Accidental Deaths, ...	84
Died from drinking, ...	5
Found drowned, ...	12
— dead, ...	5
Natural deaths, ...	39

Cases disposed of by Petty Court.

	1855.	1854.
Cases, ...	1,186	1,054
Persons, ...	1,970	1,912
Convicted, ...	1,529	1,446
Acquitted, ...	441	466

Inoffences for which persons of less than 14 were brought before the Magistrates, 244 were apprehended, of whom 129 were committed and 115 discharged. Of those committed 77 were charged with robbery, 1 with possession of implements of house-breaking, and the remainder with trifling offences. Mr. Crawford gives a mortuary return, useless in presence of Dr. Leith.

PURLA KIMEDY.*Madras Records.*

THIS book contains a Report on Goomsoor, dated 12th August, 1836, by Mr. G. E. Russell, despatched as Special Commissioner into that territory. It contains a sketch of the Province, an abstract of its former history, a minute account of the rebellion of 1835, and Mr. Russell's opinion as to the measures it was necessary to have recourse to for the future. On the same date the Governor in Council reviews the correspondence, but as the Zemindaree was already declared forfeited only notices matters of detail. On 3rd March, 1837, Mr. Russell submits a Report continuing the former one, detailing events in the hilly tracts of the Province, and recounting the local changes introduced. On 4th March, the Government proposed publicly to thank Mr. Russell and the troops. On 11th May, Mr. Russell once more recapitulates the facts of the rebellion, describes the country, and proposes measures calculated to secure its permanent tranquillity. He also furnishes accounts of his expenditure as Commissioner, and lists of establishments existing and proposed. On the 21st November, 1837, the final orders are passed, in accordance with Mr. Russell's Reports.

MORTUARY REPORT OF BOMBAY.

ON 30th June, 1856, Dr. A. H. Leith submits Returns of the mortality of the Island of Bombay during 1855. He observes that of the Returns one eighth only are written, the remainder

being received orally. The Return of the Causes of Death is unsatisfactory, the people declining to afford aid, and even the Grant Medical College graduates displaying apathy. "The deaths registered were 14,928, which is 3,082 less than in the preceding year, and 295 above the average of the preceding seven years. The reported still-births were 281, or in the ratio of 1.88 to the whole. Of the 14,647 deaths that occurred after birth, 8,064 were males, and 6,583 females, or in the ratio of 1225 males to 100 females, the mean proportion for the previous years being about 124. There was a slight preponderance of female deaths among the Parsees and among the Jews, but the latter race is here so few in number, that great fluctuations are to be expected in it: the male deaths were in excess in every other ethnological class of the population." The ages recorded are only approximative. "Of the 14,647 deaths, exclusive of still-born, that were registered, 2,753 were from epidemic causes, which number is in the ratio 18.8 per cent. and falls short of the annual mean by 458. The Cholera deaths were 1,739, or 677 less than the average of the preceding seven years. The months in which they chiefly occurred were April, May, June, and July." As to the latter disease the sections with houses closely built in dry streets, though closely peopled, are as usual freer from the disease than where there is much water, or there are irrigated gardens. The number of deaths from fever is equal to 46½ per cent. of the total mortality. The entries however are somewhat more numerous than they ought to be, disease attended with fever being recorded as fever. The probable sources of fever are the salt marshes between Trombay and the north end of Bombay, and the marshy soil of the flats. Dr. Leith proceeds to notice the deaths, but without further reflections.

Causes of Death.

From Cholera, ...	1739
Small-pox, ...	1014
Measles, .. .. .	.....
Fever, ...	6685
Nervous System, ...	570
Vascular System, ...	16
Respiratory System, ...	1265
Alimentary System, ...	1924
Urinary System, ...	10
Sexual System, and Child-bearing, ...	77
Locomotive and Tegumentary Systems, ...	85
Cachexy and Debility, ...	976
Leprosy, ...	40
Dropsy, ...	19

Accident and Violence, ...	151
Other and unknown Cause, ...	14
<i>Causes of Death among Europeans.</i>	
Cholera, ...	11
Small-pox, ...	3
Measles, ...	10
Fever, ...	10
Disease of Nervous System, ...	37
„ Vascular System, ...	1
„ Respiratory System, ...	26
„ Alimentary System, ...	65
„ Urinary System, ...	2
„ Sexual System and Child-bearing, ..	4
„ Locomotive and Tegumentary Systems, ...	1
„ Cachexy and Debility, ...	10
„ Leprosy, ...	..
„ Dropsy, ...	2
„ Accident, ...	9

Dr. Leith proceeds to detail the causes of death in each caste in different months and quarters of the year, the number and proportions of deaths from different causes, excluding epidemics, and including epidemics, and the proportion of male to female deaths. The proportion is 122.50 males to 100 females. Of epidemics alone 139.39 males die to 100 females. Dr. Leith enters into some minute details as to the months at which mortality is most prevalent, and gives the following as to the age of deaths :—

ALL CAUSES.		AGES.
No.	Prop.	
1147	7.83	0 to 15 days.
73	.49	16 to 30 „
871	5.94	1 to 6 months.
1526	10.42	7 to 23 „
1704	11.63	2 to 6 years.
778	5.31	7 to 13 „
1529	10.44	14 to 24 „
2436	16.63	25 to 34 „
1663	11.35	35 to 44 „
1060	7.23	45 to 54 „
956	6.52	55 to 64 „
377	2.57	65 to 74 „
533	3.64	75 and above.
14,647	100.	All Ages.

He also describes the mortality of the different quarters of Bombay, and gives a table of the mortality among castes and employments.

<i>Occupation, or that of Family.</i>	<i>Total, Exclusive of Still-born.</i>
Annuitant, Independent, ...	5
Auctioneer, ...	...
Baker, Grain-parcher, Cook, Confectioner, ...	198
Beggar, Vagrant, Pauper, ...	832
Bracelet-maker, dealer, ...	14
Bullock-driver, Dairy-man, ...	411
Butcher, ...	91
Cane-worker, Palm-leaf-worker, ...	46
Charcoal-dealer, ...	7
Clothier, Draper, Mercer, ...	500
Coppersmith, Brazier, ...	57
Cotten-worker or Retailer, ...	10
Crockery, Glass-dealer, ...	3
Domestic Servant, Barber, ...	1413
Druggist, Perfumer, ...	9
Dyer, ...	103
Engineer (Civil), ...	8
Engine-driver, Stoker-maker, ...	18
Fisherman, Fishmonger, ...	277
Gardener, Greengrocer, Agriculturist, Hay and Straw-dealer, ...	586
Gold-Silver-Smith, Jeweller, Watch-maker, ..	208
Grain dealer, or Grinder, ...	104
Grocer, ...	159
Gunpowder, Fireworks-maker, dealer, ...	8
Hawker, ...	98
Hemp-Coir-worker, or dealer, ...	49
Hooka-Pipe-maker, dealer, ...	1
Horse-driver, dealer, Farrier, Groom, ...	266
Iron-worker, or dealer, ...	116
Labourer, ...	2719
Lawyer, and Coven. Civil Servant of Govt., ...	6
Leather-maker, worker or dealer, ...	231
Leechman, ...	1
Liquor-seller, Distiller, Palm-wine-drawer, ...	322
Marine-stores dealer, ...	...
Maritime-man, Boatman, ...	562
Mason, Quarry-man, Lime-stone-worker, or dealer,	363
Medical man, ...	38
Merchant, Banker, Broker, ...	677
Carried forward, ..	10,516

<i>Occupation, or that of Family.</i>	<i>Total, Exclusive of Still-born.</i>
Brought forward, ..	10,516
Military man or Pensioner, ..	428
Money-changer, Assayer, ..	64
Musician, ...	48
Oil-drawer or dealer, Soap-maker, Candle-maker, ..	46
Painter, ..	26
Pitch,-Tar,-Rosin-dealer, ..	...
Plumber, ..	...
Policeman, Watchman, Messenger, Tax-gatherer, .	384
Porter, Palkee-bearer, ..	531
Potter, Brick, Tile maker, or dealer, ..	51
Poulterer, ...	21
Priest, ..	191
Printer, Stationer, Book-binder, dealer, ...	67
Prostitute, ..	122
Salt-maker, dealer, ..	12
Scavenger, Sweeper, ..	109
School-master, Teacher, ..	11
Silk-worker, dealer, ...	36
Tailor, Sempster, Embroiderer, Tent-maker, ..	365
Tavern-, Coffee-, Boarding-house-keeper, ..	8
Tin-, Tin-plate-worker, Glazier, ..	33
Tobacco-, Betel-, Opium-, Gunja-dealer, ...	45
Toy-maker, dealer, ..	1
Washerman, ..	190
Water-carrier, ..	109
Wood-worker, dealer, ..	771
Wool-worker, dealer, ...	2
Writer, Accountant, ..	431
Unknown Occupation, ...	79
Total, ...	14,647

The number of still-born is 281. Dr. Leith concludes with a meteorological table. The quantity of rain which fell in the year was 41·80 inches on 91 days. On 5th July, 1856, Government approves the Report, and directs the publication of an order censuring the negligence of Medical Practitioners as to these Returns.

REPORT ON THE PUBLIC WORKS OF MEERUT COMPLETED IN 1854-55.

North West Provinces Records, No. XXVII.

On 7th August, 1855, Mr. E. M. Wyly, Magistrate of Meerut, reports to the Commissioner of the Division, and ex-

plains the Nuzzool Fund. This fund is derived from the sale of Government property in land buildings, &c. within the Zillah. The fund thus realized amounts to Rs. 31,217 devoted to public works. Mr. Wylly describes the drainage capabilities of Meerut, and the improvements introduced. The drainage has now been made efficient at a cost of Rs. 17,059. The principle of the improvements is the excavation of two deep drains which carry off the surface water of the tanks. The water is carried rapidly and freely into the neighbouring Nuddee. Half the money has been paid from Cantonment Funds. The drainage of the city has been commenced, and several roads repaired. The large grain mundee has been metalled throughout, and the people have at once undertaken to suit their shops to the improved condition of the mundee. New shop fronts have been built, and all chuppers are being removed. The official expense of these works has been Rs. 7,478. Mr. Wylly enters into some further details, and proceeds to notice the Dispensary. Rs. 6,210 for this building were subscribed in the town, which is proceeding, as are houses for the Sub-Assistant Surgeon and the servants. The daily attendance is from fifty to ninety. A gunge has been erected at Bhagput, on land sold in lots. The shops are of brick and upper storied. A serai at Moradnugger has been erected. F. Read, Esq., Superintendent of the Upper Division, Ganges Canal, on 3rd August, describes the system of drainage, and gives detailed accounts of the work done.

HULKABUNDEE SCHOOLS.

N. W. P. Records, No. XXVII.

ON 5th January, 1856, Mr. H. S. Reid reports on the Hulkabundee Schools of Pergunnah Kosee, Zillah Muttra. "They are 14 in number. They are attended by 790 boys, of whom 492 are the sons or relatives of land-holders, 157 of cultivators, 12 of putwarees, and 129 of non-agriculturalists.

"It is, however, satisfactory to observe that not less than 248 boys, resident in other villages than those in which the Schools are held, attend, being on the average 18 per School. The ordinary attendance at indigenous Schools does not exceed 10.

"The average attendance per School amounts to 56, and the average salary of the Teachers to Rs. 550-11-9. The average cost of each boy's education is somewhat less than one Rupee a year; in other words, the annual salaries of the Teachers amount to Rs. 780, while the number of Scholars is 790.

"The day His Honor inspected the Schools in the compound of the Kosee Tehseeldaree, upwards of 700 boys were present. I believe that not less than 200 or 250 of that number could solve Questions in Rule of Three; that a still larger number could calculate the area of fields.

"The boys are instructed in reading and writing the Nagree character. They learn the History and Geography of India. In several Schools they are reading Algebra and Geometry. They learn the use of the Plane-table, and can in some instances survey and measure land with considerable readiness.

"The Hulkabundee system has been introduced also into the Areeng and Sahar pergunnahs. They contain 85 Schools attended by 1,048 boys, of whom 316 are the children of landholders, 400 of cultivators, 27 of putwarees, and 305 of the non-agricultural classes. The Scholars are not so far advanced as those in Kosee, nor are the Schools so largely attended, the average number of boys per School being 23 in Areeng, and 36.5 in Sahar."

ROADS IN NIMAR.

N. W. P. Records, No. XXVII.

ON 3rd January, 1856, R. H. Keatinge, Esq., Political Agent in Nimar, reports to the Agent for Central India, on the Nimar Roads. The receipts amount to 1,47,382. Of this sum 19,644 is derived from the one per cent. on the Settlement, Rs. 45,852 from road and ferry tolls, Rs. 25,767 from "Chittawun," and the remainder from State Grants and sources not detailed. "Chittawun" was the fee paid for writing the pass. It is now an ordinary toll. The people approve the tolls. The greater proportion of the money, Rs. 1,12,794, is spent on the great or Indore and Boorhanpore road.

On 10th January, 1856, Sir R. Hamilton submitting this Report observes that this road is ninety-seven miles long and has cost, including the ascent of two ghauts, Rs. 1,100 a mile. It is the direct line of communication between Upper India and the Deccan. Repairs will cost Rs. 60 a mile per annum.

On 12th February, Mr. W. Muir, Secretary, North Western Provinces, acknowledges the Report, and hints that three toll stations on ninety-seven miles of road is too many.

On 24th March, 1856, Sir R. Hamilton explains that no

other arrangement would protect the rights of those who levied the old transit dues, and that the people are satisfied. He encloses a letter from Lieutenant P. H. Keatings explaining farther. The tax on a two bullock cart of grain is only seven annas, including the crossing of the Nerbudda. The Government on the 10th April, replies that the tolls ought to be simplified.

THE SETTLEMENT OF PERGUNNAH BARRAH, ZILLAH ALLAHABAD.

N. W. P. Records, No. XXVII.

On 9th December, 1850, R. Temple, Officiating Collector, Allahabad, reports on this Settlement. This Pergunnah once formed part of Rewah, a principality exempted, probably by Humayoon, from the land tax. Subsequently it was disunited from Rewah, and became part of Oude. All this time the Talookdaree remained in one family. A Rajpoot, named Prithee Chând, obtained two villages, gradually seized the whole pergunnah, and founded a great family. The process appears to have been carried on in this wise :—

“First eleven other villages in the neighbourhood of Emilia were allowed him, in order that he might sustain his State. Then he obtained eleven more villages subordinate to Deora, in acknowledgment of services he rendered in collecting the Rajah's revenues in other parts of the pergunnah. A footing having been thus established, he and his descendants addressed themselves to the task of reducing the resident proprietors throughout the pergunnah, and raising up for themselves a zemindaree position independent of the Rewah Rajah. First they would stand security for some proprietors, and when default occurred would possess themselves of the estates. With the same view they would grant loans. Then they began to use force. Sharp resistance was, however, met with in several conflicts, which are still remembered by the villagers. The Bunapurs of Tikree fought the usurper to the last, and the ‘chourah’ (funeral pyre) which they raised to the memory of their slain is still to be seen. At length, however, these Bunapurs yielded when their leader Duljeet was seized and put to death in the invader's stronghold at Nowrheya. The Bais of Chilla Gowhane were at feud with the Chowdrees of Birwul. So fair an opportunity was not to be neglected by the Lal. He fomented the dispute, interposed between the disputants under pretence of aiding one of them, (the Chillah Gowhane people,) and thus possessed himself of the estates of both, including a circle of subordinate villages.”

The family still grew, and dispossessed almost all the ancient Zemindars. They subsequently fell into arrears of revenue with the Lucknow authorities and in 1801-02, when the territory was ceded to the British Government the Talookdar was sold up. The Rajah of Benares purchased the pergunnah, improved it, and increased its revenue from Rs. 1,10,000 to Rs. 2,32,000. In 1821, a son of the Talookdar contested the sale, and it was upset. The Rajah appealed to England, and the pergunnah was placed under the Court of Wards. It remains there. In 1832-33, Mr. Speirs made a farming settlement, "a careful field measurement was made, rent rates and cultivators' holdings fixed, and all heritable rights possessed by the tenants were investigated."

In 1848, Mr. Alexander conferred a moquddamee biswahdaree title on many of the farmers. To the remainder farming leases were granted. It was held by Mr. Alexander that all rights sprung from the Talookdar either by gifts, service grants, "direct allocation" mere sanctions, and blood relationship. "Whenever occupation arising from any of the above causes was found to have been continuous or nearly so since the accession of the Company's rule, and the names of claimant's ancestors had been recorded as Raees in the moazinah anterior to that period, a biswahdaree settlement was made."

Mr. Temple proceeds to detail some anomalies in the Settlement, and his own proceedings. They involve no material change in Mr. Alexander's plan. The number of khan estates is considerable.

TENURES IN PERGUNNAH BUDOHEE.

N. W. P. Records, No. XXVII.

ON 25th October, 1855, Mr. W. R. Moore, Ex-Joint Magistrate of Mirzapore, reports on the tenures of this pergunnah. Their peculiarity is that the Zemindars are called Munzooreedars, and the Non-proprietors Namunzooreedars and that the ryots have a prescriptive, proprietary right in the soil. Mr. Moore briefly explains the historical origin of this anomaly.

PUBLIC WORKS IN THE PUNJAB.

Punjab Records, No. II.

ON 14th December, 1854, R. Temple, Esq. Secretary to Chief Commissioner, Punjab, writes to R. Montgomery, Esq. Judicial Commissioner, and offers suggestions on the preparation of the Annual Improvement Reports. The Chief Commissioner desires that these reports should embrace all improvements effected by the district officer, and the state of all local funds. The official year should be followed. Mr. Temple proceeds to detail the information required under the heads of roads, buildings, ferries, conservancy, Government buildings, and miscellaneous improvements. The reports should be brief. On 31st January, Mr. Montgomery forwards a Report drawn up in accordance with these instructions for 1854-55. "The first statement will show that the amount at the credit of the local funds at the close of the previous year's accounts, was Rupees 9,26,499-15-5, and that the income during the year 1854-55, amounted to Rupees 5,10,696-15-3, making a total of Rupees 14,37,196-14-8, which had to be debited with expenditure to the extent of Rupees 6,77,903-4-8½, leaving at the close of the past year an available balance of Rupees 7,64,222-3-8½." The character of the expenditure is thus shown:—

	<i>From Local Funds.</i>			<i>From General Revenues.</i>			<i>Total.</i>		
Rs.	2,88,722	8	0	2,34,633	12	9	5,23,355	15	9
Ditto on account of Buildings, Nuzool or otherwise,	1,08,284	14	9½	2,60,031	2	4	3,68,316	1	1½
Ditto on account of Wells,	19,764	7	5	4,040	12	9	23,805	4	2
Ditto on account of Tanks,	1,700	0	0	0	0	0	1,700	0	0
Ditto on account of Bridges and Bunds, ...	54,604	4	5	43,284	9	11	97,888	14	4
Ditto do. Establishment, appertaining to the Local Funds only, ...	45,555	0	11½	0	0	0	45,555	0	11½
Miscellaneous Charges, ...	1,59,272	6	2	1,061	6	2	1,60,333	12	4
Total, ...	6,77,903	4	8½	5,43,051	11	11	12,20,955	0	7½

The word establishment includes a River Police, and some gardeners, besides the regular establishment. The miscellaneous charges are principally for ferries, and boat-bridges. The following are the buildings and other public works constructed during the year:—

<i>Description of Work.</i>	<i>No.</i>	<i>Cost.</i>		
Revenue Record Office, ...	1	500	0	0
English Office, ...	1	400	0	0
Kutcheries, ...	4	71,932	12	2
Additions to ditto, ...	1	3,791	7	0
Jails, ...	4	41,603	9	10
Treasuries, ...	5	28,782	4	5
Treasury Office, ...	1	219	15	0
Jail Worksheds, ...	5	1,065	9	5
Jail Hospital and Barracks for				
Guard, ...	3	1,088	15	8
Tehseels, ...	4	27,956	15	4
Additions to old ditto, ...	2	3,876	0	0
Kotwalee, ...	1	339	6	0
Hawalat, ...	1	932	10	9
Thanahs, ...	12	19,578	0	4
Additions to old ditto, ...	1	300	0	0
Tehseel and Thanah united, ...	3	8,689	2	4
1st Class Chowkees, ...	19	9,719	9	11
2nd Class ditto, ...	46	8,572	1	4
Police Lines, ...	1	86	4	0
Supply Depots, ...	27	31,774	2	9
Godown for Ferry Stores includ-				
ing Travellers' rest, ...	1	479	0	3
Seraies, ...	21	31,070	0	0
Improvements to old ditto, ...	1	111	2	9
Bunceahs' Shops, ...	35	2,332	7	3
Wells constructed, ...	71	21,822	3	4
Ditto repaired, ...	29	1,580	3	0
Cisterns and Water Troughs for				
ditto, ...	3	116	7	3
Encamping Ground Pillars, ...	18	682	5	2
Ditto grounds cleared, ...	17	705	10	9
Tanks, ...	1	1,259	11	3
Dispensaries, ...	8	8,902	3	4
Bridges, ...	251	64,645	8	1
Ditto repaired, ...	1	19	14	0
Dawk Bungalows, ...	2	2,720	0	0
School House, ...	0	0	0	0
Leper Asylum, ...	1	500	0	0
Bund, ...	1	2,783	11	5
Sowars' Lines, ...	1	1,377	6	5
Post Office, ...	1	100	0	0

Grand total for the Punjab, 605 4,02,446 12 6

The No. of trees planted is 22,21,560 in the different districts. This Return is not very accurate. Mr. Montgomery proceeds to remark that the money raised by cess on the town population is cheerfully paid. No objection has ever been made by the inhabitants. Mr. Montgomery proceeds to analyse the district reports of which the following tables are summaries :—

	<i>Cis-Sutlej States.</i>	<i>Trans- Sutlej.</i>	<i>Lahore Division.</i>	<i>Jhelum Division.</i>	<i>Leia.</i>
Local fund income, Rs.	1,29,245	1,18,667	1,26,757	51,442	46,134
Plus balances, ..	4,09,266	2,27,580	2,89,613	1,65,342	1,77,408
Expenditure from Local funds, ..	2,41,344	1,62,788	1,22,753	52,171	70,473
Expenditure on					
Roads, ...	78,641	54,637	35,096	35,721	64,960
Buildings, ...	22,445	40,887	42,327	2,500	—
Wells, ...	15,818	254	587	1,411	386
Tanks, ...	1,700	—	—	—	—
Bridges, ...	19,062	22,517	15,919	2,530	1,304
Establishment, ...	14,416	10,673	16,797	2,249	613
Miscellaneous, ...	89,261	38,818	22,022	7,758	3,209
		<i>Mooltan.</i>	<i>Peshawur.</i>		
Local fund income, ...	...	16,542	21,907		
Plus balances, ...	...	59,186	1,08,797		
Expenditure from Local funds, ..	..	24,543	3,917		
Expenditure on Roads, ..	...	18,919	744		
Buildings, ...	...	28	95		
Wells, ...	...	1,307	—		
Bridges, ...	...	2,007	1,263		
Establishment, ...	...	735	68		
Miscellaneous, ..	..	1,456	1,745		

CLEANSING THE DRAINS OF BLACK TOWN.

Madras Records, No. XXXII.

ON 25th November, 1851, a Committee was appointed to examine and report upon a plan submitted by Captain Boulderson for cleansing the drains of Black Town by sea water pumped up by a steam engine. The Members were Major J. T. Smith, Major F. C. C. Cotton, and Captain G. C. Collyer, Engineers. The Committee on 9th February, 1852, report that they have considered Captain Boulderson's plan and unanimously disapprove it. Black Town is built on two ridges between which the main sewer drains lie. The street drains run parallel with it, the secondary drains run down the ridges. The evils to be removed

are connected entirely with the main sewer. There is a want of inclination in its bed, and of free outfall at its mouth. No amount of pumping will even palliate these defects. They also believe that the plan would involve evils in the way of the increased decomposition of fetid matter greater than those which at present exist. Those evils would not be removed by arching over the drain. The true mode to improve the sewer is to improve its slopes and outfall, and at the outfall if necessary use a pump to discharge the contents. A new water supply is also required, and the Committee conceive that both water supply and drainage should be studied in all their details. They conceive that at least one officer's entire time should be devoted to this purpose. They decline to offer a broad scheme, but allude to the following facts as established :—" It appears that a scheme for improving the drainage of Black Town will not benefit more than one-third of Madras, and that, as Mr. Elliot, the Chief Magistrate states, the portion at present best provided for already. That the pipe drainage so strongly recommended by H. M. Sanitary Commissioners seems peculiarly well suited to the chief portion of Black Town, and also to the other low lying districts of Madras. That the discharge from pipe drainage would be less impeded by the action of the surf than that from large sewers. That an additional supply of good water in all parts of Madras is a great desideratum. That some additional supply may be had from the present wells on the north side of Black Town. That a large further supply of the same excellent water might be had from wells sunk at a spot three miles north of the present wells. That a liberal supply of water brought into convenient positions for the benefit of the inhabitants of Madras, would lead to its use by the people in such quantity as to render the sewage sufficiently fluid for pipe drains, if it be not so already. That fresh water to a considerable extent might be collected in a tank formed in the valley of the Adayar, the ground being peculiarly favourable. That the tract of ground south of the Adayar would probably supply the adjacent section of Madras with water of the same quality as is now procured from the wells in the north of Black Town. That nothing would so effectually secure Madras against the risk of an insufficient supply of water as a tank in the neighbourhood supplied by a river. That the most certain river is the Palar, whose waters already come to Madras in small quantities, by indirect channels. That the Adayar river has never been a year, the Committee believe, without water sufficient to fill such a tank as is required, and there is reason to think that either in its bed, or elsewhere in the neighbourhood of Madras, there would be no difficulty in forming a tank of capacity sufficient to supply

Madras for two years if necessary." The Committee also doubt the expediency of permitting the land North of the Monegar Choultry, from which water is at present brought, to be covered with habitations. They are also of opinion that the offensive odour caused by the main sewer might be remedied at once by raising the slope of the sewer. They conclude with an account of Captain Boulderson's plan.

On 26th April, 1853, the Military Board report to Sir H. Pottinger stating that the Court of Directors had sanctioned an expenditure of Rs. 73,925 on the reconstruction of a portion of the Main Sewer, and constructing a masonry channel in place of the ditch as a surface drain for the part of the Esplanade. The Board invited tenders for the work, but meanwhile discussed the disposal of the sewerage during the time which the tunnel would occupy in construction. The Board considered it dangerous to permit the sewerage to flow into the Cooum. To build the new tunnel by the side of the old one would be expensive, and they therefore determined to await the arrival of the new Chief Engineer, Colonel A. Cotton. That officer assumed his seat in June, 1852, and made a Memorandum on the subject, the purport of which is briefly this.

Colonel Cotton considers that the scheme proposed by the Committee for cleansing Madras by a reservoir formed by damming up the Adayar above St. Thomas' Mount was feasible and satisfactory. This work would secure a full and wholesome supply of water for the whole of the Presidency town, suburbs, and out villages included. It would clean it also, keep the rivers pure, irrigate the gardens, render Cochrane's Canal always navigable, and facilitate the distribution of commodities in every corner of the Presidency Town. Granite could be brought from the Mount into Madras at a cheap rate. The sources of income would be payment for water used for irrigation, a toll on the canal, a rate for the use of water power, and perhaps a payment for water for domestic use.

The Board agreed with Colonel Cotton as to the necessity of considering all these questions together, and with the view of obtaining further reformation applied to the Medical Board. That Board sent in six Reports. In one Mr. Cole calls attention to the nullah north of Mount Thome, the stench from which is so offensive that the road at times is barely passable. Dr. Cleghorn speaking of Triplicane, and Mr. Kellie of Vepery condemn the drainage as imperfect, the smells as most injurious, and the tanks as receptacles for filth. Dr. Hunter believes the drains the cause of much fever, and observes that disease is more prevalent in the dry than the rainy season, be-

cause in the latter the drains are flushed. The quantity of water is insufficient, and the quality usually bad.

Subsequently the Board received another Memorandum from Colonel Cotton, and on all this evidence they proceed to remark that a new supply of water and more complete drainage for Madras are urgently required. They observe that the internal navigation will be improved, and the supply of water rendered ample. Granite would be readily procurable and troops instead of being located in unhealthy situations in the town could be located outside, and brought down daily by the canal to change guards, &c.

As to the financial aspect of the question Colonel Cotton estimates the cost of his scheme at three lakhs of rupees. If it costs six the improvement will, in the Board's opinion, be worth the outlay. Of this sum the amount sanctioned for the new sewer, or Rs. 74,000, and for the purchase land for a Regiment at Vepery, or Rs. 80,000, together make one lakh and a half. Supposing the works to cost 5 lakhs, the interests on that sum would be Rs. 25,000 and repairs and superintendence as much more. The following would be one Return :—

Saving at the Gun Powder Manufactory by the use of water power, ...	Rs. 7,600
Irrigation for 3,000 acres of land at 5 Rs. an acre, ...	„ 15,000
House water rate, ...	„ 17,600
Carriage of 200 tons of goods and passengers 12 miles on the Canal daily for 300 days, at 3 Pice per ton per mile, ...	„ 11,250
Total Rs.	51,350

Then there are 1,40,000 houses in Madras. Of them 23,500 bear a rental exceeding Rs. 20 a year. Supposing all houses below that rent exempted, there would remain, at rates graduated from 4 to 12 annas per house according to rent, Rs. 20,193. Houses in Madras now pay 5 per cent. on the rental for the maintenance of roads, amounting to Rs. 1,28,610 a year. The use of granite would cheapen these roads. The canal toll would produce something, and the saving on the repairs of the Government roads from the use of granite a great deal more.

Madras it must be remembered contains 7,00,000 persons, packed as only London, Paris and perhaps Constantinople are packed. The outlay of 20, 30, or even 100 thousand pounds is therefore insignificant, when compared with the advantage of drainage and good water, for such a mass of human beings.

The Appendices to this paper contain Colonel Cotton's Memorandum with his own description of the works. "I would then propose, that a Tank should be made by damming up the Adayar near the Mount, where there is an extensive plain almost un-

occupied, and on a level that would command all Madras ; it should contain from 20 to 50 Millions of cubic yards of water, and be of such a depth as to ensure a full supply for *drinking* purposes through the second dry season ; from thence the water should be led, a small part down the Adayar to improve the state of that River, and the principal part by a Channel into the long Tank, thence into the Nungumbaukum Tank, and then by a cut into the Cooum ; a portion for the supply of Black Town should be carried by the line of the Spur Tank and across the Black Town Esplanade to the centre of Black Town, being carried across the hollows in pipes so as to be delivered at the level required ; the whole of this line of water from the Mount to the Cooum and by the Black Town ditch, and a new Channel along the North face of Black Town, to the Beach near Clive's Battery, should be made navigable, the total fall of about 40 feet being provided for by about 6 locks.

The cost of this would be about :—

Tank to hold 80 Millions cubic yards, ..	1	Lac.
Six locks at 12,000 Rupees, ...	$\frac{1}{2}$	”
Anicuts across the Cooum, ...	$\frac{1}{4}$	”
New cuts cleaning Black Town ditch, &c., ..	$\frac{1}{4}$	”
Water pipes and sundries, ...	$\frac{1}{4}$	”

3 Lacs.”

The selection also comprises the reports, all the facts of which are summarized above, and also the result of a careful examination of the Adayar basin. It proved satisfactory.

EDUCATION IN BENGAL.

Report of the Director of Public Instruction for the year 1855-56. It deals with the year beginning May 1st, 1855.

THE Director, Mr. Gordon Young, reports to the Secretary to the Government of Bengal, on *September 13th*, 1856.

There has been unavoidable delay in carrying out the provisions of the Great Educational Despatch of *July*, 1854. To this day the University scheme has not been finally approved. And the machinery for the improvement of General Education has not been completely organized. In many parts of the country the new system has yet to be commenced upon. Still a full Report on the University scheme was submitted to Government on 7th of August, containing a scheme which if sanctioned can

at once be acted on. The Presidency College is already placed on the improved footing sanctioned by the Despatch, and is a model for the imitation of the Mofussil Colleges, whose course of instruction is undergoing assimilation to the standard involved in the University test for the degree of B. A. for which degree it is hoped that not only the students of Government but of private Colleges will compete. The examinations of the past session have been conducted by examiners unconnected with the Colleges or the lads to be examined. The standard was higher than in past years, and with regard to candidates for Senior Scholarships the result as tested by this standard was not very satisfactory, but the answers of the students leaving College were with one exception admirable. A general failure in Chemistry was attributed to the novelty of the subject. The Law Department in the Presidency College has been placed on a more satisfactory footing. The Medical College has surpassed the results of former years, and when the Civil Engineering College is opened there will be the means open to all of obtaining a degree in any of the four faculties of the University. The Sanscrit College continues to work successfully ; the reduction of the fees at the Calcutta Mudrissa has in two months increased the number of students from 67 to 107. The Zillah Schools have worked well, but a Committee has been appointed to report on the requirements for their improvement. A uniform standard of examination tests has been introduced. For the Junior Scholarships' examinations have been held annually at these Schools, and though the test was high the Schools have stood it well. The Patna School has been raised to the station of a High School or quasi College. 60 Out Scholarships have been established in connection with the Government Colleges to be competed for by boys educated at private Schools. The Head Masters of the Zillah Schools are generally well qualified and zealous, but this is not so true of the inferior masters, and a training School may perhaps be necessary for English as well as for Vernacular Teachers. It is also most desirable that European Educational officers should qualify in the Vernaculars. Normal Schools for native Vernacular Teachers have been established at Calcutta, Hooghly, Dacca and Goughatty, and travelling Normal Teachers are employed in each district of Behar. But little can be done in Vernacular Education until good Teachers are available. All that has been done has been based on the principle "that the people are to be if possible induced and assisted to educate themselves ; not to look to Government to do every thing for them." The principal measures to this end have been the establishment of two Model Schools at Government expense in each district of Behar, eight Schools in each of the three districts of Dinapore, Rungpore and Bograh,

and five Schools of a superior kind in each of the districts of Nuddeah, Burdwan, Hooghly and Midnapore. The old Government Vernacular Schools have also been preserved where it was possible. In many districts the indigenous Schools are periodically examined, and stimulated to efficiency by loans of books and money rewards. The most promising Schools in the 24-Pergunnahs, Baraset, Jessore, and Dacca have been formed into circles each under an itinerant Normal Teacher; in 17 districts a Scholarship of 4 Rs. a month has been offered to the best pupils of Vernacular Schools; Grants in Aid amounting to 6,265 Rs. have been given to 79 English and 140 Vernacular Schools, chiefly situated in the districts near Calcutta and supported almost exclusively by natives, one of whom, Baboo Joykissen Mookerjee has with his brother established 24 English and Vernacular Schools on their estates in Hooghly and Burdwan. In districts distant from the capital private aid to Education is obtained with such difficulty that it may be needful to relax in their favour the conditions of the Grant in Aid Rules. The notification of July 9th, 1855, prohibiting persons who cannot read and write from receiving Government appointments worth more than Rs. 6 per mensem, is considered an important auxiliary to education.

In the publication of Educational Works, the department has done little, this field being now nearly occupied by private individuals, and by the School Book and Vernacular Literature Societies; all aided indirectly by the Department. The statistical returns of the Department are hereafter to be drawn up on an improved form. The sum expended on English Schools and Colleges in 1855-56 was Rs. 3,23,246 and on Vernacular Schools Rs. 17,590. In conclusion Mr. Young says of the officers of the Department:—

“It would not have been easy to find more able and enthusiastic Inspectors of Schools, than those who have held these appointments during the year, viz. Messrs. Pratt, Chapman, Woodrow, and Robinson. To work with such men is both an honor and a pleasure. The Principals of Colleges have discharged their duties with the ability and unostentatious industry for which, in former years, they have earned the acknowledgments of Government, and of the Professors and School Teachers, with but few exceptions, nearly the same may be said. The great majority of the Local Committee have also rendered willing and valuable aid to the Department, aid which is the more deserving of acknowledgment, inasmuch as it entails upon persons whose time is already well-occupied additional labour without additional emolument.”

Appendix A. contains Extracts from the Reports of Inspectors

of Schools, Principals of Colleges, and Local Committees of Public Instruction.

MR. WOODROW, Inspector of East Bengal, in his Report for the quarter ending July, 1855, says that whereas the number of boys at School in Bengal, ought to be 3,80,000 in order to equal the English proportion of seven per cent. on the whole population, the actual number is only 2,065. "Education for the masses has therefore to be commenced in Bengal." Mr. Woodrow after describing in detail his arrangements for the Sub-Inspectorships, bears witness to the efficiency of the numerous private Schools near Calcutta, and to the general progress of Education in Baraset. Mr. Woodrow remarks that the Boarding School at Baraset receives but a fluctuating and limited support, and that the attendance in the Agricultural Class has fallen off. "The respectable castes of Hindus consider manual labour disreputable, work in the garden is not popular among the students, but it might be different if Agricultural knowledge were made to "pay" in the marks for Junior Scholarships." Without such pecuniary reward the success of the garden is impossible. The Baraset Female School "is in existence and that is all." The English Zillah Schools throughout Mr. Woodrow's District are "all steadily increasing in number and influence.

MR. CHAPMAN, Inspector in Behar, in his Report for the same quarter says that from 1835 to 1845, the English School at Patna with an annual average of 96 boys was the only one in all Behar. There are now nine Government and three Private and Missionary Schools with a total of 1,350 boys learning English. This progress mainly is attributed to the impression which is abroad that a knowledge of English is necessary to Government employ, but there are other causes which Mr. Chapman specifies. The condition of the Schools is satisfactory, though the education is but elementary. Mr. Chapman attaches great importance to English instruction, but considers it only the accessory of the more important Mission of Vernacular Education. But to the spread of Education of this kind there are great obstacles in Behar, arising chiefly from the bigotry of the Mussulman Moulavies and a general fear of proselytism exasperated at the moment by the excitement caused by the attempt to deprive jail convicts of their *lotas*. The Sonthal Insurrection also impeded educational efforts throughout two entire districts. The difficulties have been increased by the fact that the School Books are printed in the *Dev Nagri* character instead of the *Kyasthi* which is in general use. Mr. Chapman thinks however that the introduction of *Dev Nagri* should be insisted on, and that this difficulty will gradually vanish. The principal feature of the vernacular

operations has lain in the recognition of the indigenous teachers. The Sub-Inspectors have visited 498 Hindu and 834 Mussulman Schools. Their reception has not been generally satisfactory as the native teachers are jealous, and alarmed. Something has been done in the sale of School Books, and Model Schools are in course of establishment.

MR. HODGSON PRATT, Inspector in South Bengal in his Report for the same quarter describes in detail the system on which his Sub-Inspectors have worked, the difficulties which they have met with, chiefly owing to the jealousy of the proprietors and teachers of indigenous Schools and to the ambition of the parents to give their children a smattering of English in the hope of qualifying them for public employ; he states what has been done towards the preparation of school-books. Mr. Pratt thinks that "the multiplication of English elementary Schools is an evil to be avoided."

MR. CHAPMAN in the second Quarterly Report reports that a private English School just established at Dinapore should be adopted by Government. He reports a falling off in the attendance at the public English Schools generally, and attributes it partly to the determination of Government to dispense with a knowledge of English as a requirement for candidates for Government employ, and partly to the establishment of the private Schools; the above mentioned total number of English scholars in the district has increased to 1440. With regard to vernacular Schools the jealousy of the teachers and the religious suspicion of the people are still impediments. The Local Committees as Committees show little zeal or energy, but the contrary is true of their members acting individually.

MR. ROBINSON, Inspector in Assam and North Bengal in his Report for the quarter ending *October*, 1855, finds the people rather indifferent to education, but by no means absolutely opposed to it. Efforts, to be hereafter extended, have been made for the encouragement of indigenous Schools, fourteen of which have been visited by the Sub-Inspectors and very favourably reported of. The Government Vernacular Schools will it is expected benefit greatly by the Sub-Inspection system. The English Schools continue to be well attended, and the Missionary Schools among the Khassia and Cachar hillmen are efficient and promising.

MR. WOODROW, in his second Quarterly Report discusses at length the state of the indigenous Gooroomohashoy Schools and the means demanded for their improvement. At these Schools the boys though taught to read and pronounce fluently do not understand what they read. The Gooroomohashoys or teachers themselves are frequently no wiser. But Mr. Woodrow would

still retain these men as reading and writing masters. "The Gooroomohashoy should still keep his School, collect the fees and teach what he calls reading, writing, and arithmetic but should leave to others the duties which he is himself unable to discharge." This plan has already been successfully adopted by the Krishnaghur Missionaries. The Gooroomohashoys should receive a small fee for each boy attaining a certain proficiency, and the best boys in each School should receive a trifle to induce them to continue their studies. "The Gooroomohashoy system can be maintained at one-fourth of the cost of the Government vernacular Schools."

PUNDIT ESHUR CHUNDER SURMA reports on the Normal School from its commencement to the 30th of November. The School was opened on July 5th, 1855, to retain teachers for the model vernacular Schools. It has a Head Master (native) on Rs. 150, and a 2nd Master on Rs. 50. The ages of admission are from 17 to 45 years. The School opened with 71 pupils of whom the most deserving 60 received stipends. There are monthly examinations at which those who pass are held qualified for teacherships in model Schools, and those who are found lazy are dismissed. 38 students have already passed. Low caste students are for the present excluded. The test for admission is a familiar acquaintance with "Nitibodha, Sacontalah, Bital Panchabinsati, Introduction to Sanscrit Grammar."

MR. PRATT's third Quarterly Report simply records general progress. Mr. Chapman in his third Report speaks of having previously visited a large portion of the district, he is able to confirm from a strict observation all that he had formerly asserted of the existence of a deep rooted prejudice against the educational measures of Government. The people are persuaded that their conversion is aimed at. They believe that the Missionaries are in the pay of the Government and it is almost impossible to convince them of the contrary.

The consequence is that while a *command* to send their children to School "would be obeyed if not with intelligent assent, at any rate as a decree of fate, our *advice* is despised and rarely followed." Mr. Chapman therefore finds it most effectual "to take for his starting point and to allow his subordinates to do the same, that it is *the order* of Government that people should now educate their children, and that the people ought to be satisfied that Government would not command that which is not good for them. Having laid down this principle we then proceed to prove by every argument at our command, that in so doing Government has no intention whatever to interfere with the religion of its subjects." This is the mode of proceeding which Mr. H. S. Reid has adopted in the North West Provinces.

In spite of the existing prejudices the Sub-Inspectors in Mr. Chapman's division have made some progress in introducing improved school books and modes of tuition, and in promoting the establishment of new vernacular Schools. One Native Rajah has shown much zeal in the cause of new Schools but the sale of improved school-books has seriously fallen off. Especial measures have been adopted for the improvement of the teachers of the model Schools.

MR. WOODROW in his third Quarterly Report complains that the teachers of Zillah Schools show little interest in their duty, do not keep up their own reading, and show great ignorance of passing events. "Their idea of Europe is generally derived from Addison and Goldsmith." To remedy this defect the *Illustrated London News* has been ordered out. Several Vernacular Libraries have been established by private exertion, but the sale of school-books has been slow. The Sub-Inspectors have been employed with some success in promoting the establishment of Schools.

MR. ROBINSON in his Report for the quarter ending January, 1856, (which submits several applications for Grants in Aid) reports that village Schools in Assam are on the increase, and that the English Schools are making progress. He reports at some length on the Missionary Schools at Sylhet and Cherra Poonjee.

PUNDIT ESHUR CHUNDER SURMA in his Report for the same quarter announces that there are 2,738 pupils in the 20 model Schools authorized for the districts of Nuddea, Burdwan, Hooghly and Midnapore. Their efficiency is creditable, that of the School at Mohespore in Nuddea especially so. The boys in all the Schools display great zeal, and those at Jowgong objected to a holiday when it was offered them. The people take the greatest interest in the Schools and the village elders visit them frequently. One old gentleman at Gopalnuggur in Midnapore actually shed tears of joy on hearing a boy read. The Normal School has made good progress.

MR. PRATT in his Report for the quarter ending April, 1856, during which he visited the Berhampore and Kishnaghur Colleges, and the most important English and Anglo Vernacular Schools, finds that the boys generally resort to "superhuman efforts at cramming at the end of the term" to make up for the want of continuous exertion. He would also recommend measures by which success at the examinations should be made to depend upon the exercise of the thinking and reasoning faculties, as well upon that of mere memory. This object is attained at the Jonye Training School but nowhere else. The pupils of all the Schools are seldom able to talk good or intelligible English. Gymnastic

exercises and games are recommended. In some of the Schools the progress of the classes was impeded by big boys who had entered too late and studied too long. There are 51 Vernacular and 19 Anglo-Vernacular Schools receiving Grants in Aid, and much interest is shewn in the extension of *aided Schools*. Three measures from which important results are expected have been sanctioned by the Government, namely the establishment of a superior Normal School, the assignment of Scholarships to Vernacular Schools, and the establishment of a popular Vernacular newspaper. Inefficient Vernacular teachers have been replaced. The Sub-Inspectors have given general satisfaction. Attempts are on foot to establish Public Libraries at Soory and Bancoorah.

MR. WOODROW, in his Report for the same quarter after premising that his district embracing an area of 33,607 square miles with a population of 76,58,178, is larger and more populous than Ireland, and that it is rendered ten times more vast by the difficulties of transit, especially during and immediately after the rains, says he has been compelled to confine his attention during the quarter chiefly to the 24-Pergunnahs and Baraset. He considers the establishment of Bengalee Schools to be his great business, although where Mussulmans reside in great numbers Bengalee is in disrepute. "A Mussulman gentleman performs his religious services in Arabic, writes in Persian, converses with his equals in Urdu, and speaks to servants and women in Bengalee." He speaks favourably of the Government Anglo-Vernacular Schools, and unfavourably of those supported by private persons. He complains that games and physical training are not attended to. Head Masters are above encouraging them, and the system of Education stamps a sedentary impress on the character of the boys. Mr. Woodrow conducted the Teachership examination at the Presidency College. The result was not satisfactory. The instruction in "common things" is neglected. At the late Senior Scholarship examination for all the Colleges of Bengal there was not a student who could tell why the Punkah produced the sensation of cold. In short the system of education represses the love of enquiry, and dulls the observant faculties. Mr. Woodrow urges the importance of improved training Schools on the "Pupil Teacher" system. He also points out abuses to which the Grant in Aid system is liable.

"A son of a family, of a respectable caste, is fairly educated in a Government or Missionary School. He cannot readily get a situation, and as the expression is 'he sits at home without work' and is supported by his friends. Not feeling comfortable in this dependent state, he prevails on his friends to make an application for a Grant-in-Aid for an Anglo-Vernacular

School. They agree to subscribe Rupees 25, Government gives an equal amount—and the fees are about Rupees 15. Thus an income of Rupees 65 is raised. He gets himself appointed as Head-master on Rupees 40 ; and some other dependent of the family as Second-master on Rupees 20, and leaves the rest for contingencies. The family give Rupees 25, but receive back Rupees 60. If these small Schools are carefully watched and none but qualified Teachers are admitted, this private advantage will tend to public good, and Schools will be established where otherwise there would be none. If however the Teacher thus appointed be inefficient, then he must be dismissed or the grant stopped.”

The aided Schools are all flourishing. Female education has made some progress.

Mr. Robinson's Report for the quarter ending April, 1856, goes into minute details regarding English and mixed and Vernacular Schools both Government and private, but gives no new facts of moment.

The remainder of Appendix A. consists of the separate Reports by the Principals of Colleges and Schools on their respective charges. They contain nothing calling for permanent record. Appendix B. gives a selection of the more important Circulars, &c. issued during the year. Appendix C. contains reports and papers connected with the Scholarship and Honor examinations and is incapable of abridgment. Appendix D. among other miscellaneous Tabular Statements, gives a detailed Return of students in the Government Colleges and English Schools on the 30th April, 1856, and detailed statements of the Receipts and charges of the Department.

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TO THE

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EDITED BY

MEREDITH TOWNSEND.

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SERAMPORE.

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1857.



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THE Government of India publish on an average a volume every three days. From Reports affecting the entire Empire to accounts of local drainage, from the opinions of the ablest officers to the cost of a cutcha bye-road in a frontier province, every thing finds a place in these publications. There is scarcely a subject connected with Indian Administration on which they do not exhaust official knowledge. There is no officer in the country who may not obtain from them, in reference to his special task, all the advantages of experience. The information thus vast is, however, widely scattered. The Records of one Presidency are scarcely known in another. The books are not very readily procurable, and above all they are like all other blue books dry, indigested, and overlaid with detail. It costs an hour to find a fact, and in India men who care about facts cannot spare hours.

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THE
ANNALS
OF
INDIAN ADMINISTRATION.

PAYMENT OF VILLAGE POLICE.

N. W. P. Records, Part XXVIII.

On the 23rd February, 1855, Mr. C. P. Carmichael, Assistant Secretary, North-Western Provinces, submits a Note on the remuneration of the Rural Police. The first correspondence on record is a letter from the Board of Revenue of the 9th April, 1839. In it the Board direct the Settlement Officers to allow to each village policeman 5 beeghas in jaghire. Subsequently, at a conference presided over by Lord Auckland, an opinion was expressed in favour of a fixed money payment. It was held that a salary made the policeman more independent, while the jaghire compelled him to work, and devote his time to cultivation instead of his proper duties. In time of drought the land might yield nothing, and the policeman would be driven to illegitimate sources of gain. It happened thus in 1837-38. Lord Auckland therefore resolved that one rupee per mensem should be the remuneration of a Gorait, but a Chowkeedar should have enough to give him three seers of wheat a day. Where land had been assigned no machinery was required to fix the Police dues. Where money was to be paid the amount should be included by the Collector in the jumma, and paid by the Magistrate half-yearly. This resolution was carried out.

Subsequently the Board re-opened the question in connection with some correspondence between the Magistrate of Delhi and the Settlement Officer of Furruckabad. Mr. Grant, Magistrate of Delhi, held that there should be a Chowkeedar to every thirty houses, that he and the Bullahur should be paid in money, that the Chowkeedar should receive Rs. 4 per mensem, and that the Magistrate should have power to return the money collected to villages which from good conduct or other cause needed less

than the complement of Police. Mr. Tayler, Settlement Officer answered by quoting an order of the Board of 21st February, 1840, directing that Chowkeedars should receive Rs. 3 and Bullahurs 1 Re. per mensem. Immediately after, Mr. Tayler told Mr. Grant there was no uniformity in the Delhi division, and he did not see how to introduce the new system. Mr. Carmichael remarks it was his express business to see. "In fact Mr. Tayler just did nothing." Mr. Grant exposed Mr. Tayler, who however was backed up by the Sudder Board, and Government sided with the Board. The transaction was curious because the orders of the Board and Government were opposed to Lord Auckland's Resolution, in which both Board and Government had concurred.

In Furruckabad, Mr. Robinson fixed the number of Chowkeedars according to the heavy or light assessment of the villages. The principle was peculiar to himself. In Futtehpore, Mr. J. Thornton held that one Chowkeedar could guard sixty houses, and that every separate hamlet exceeding ten houses should have a Chowkeedar. Payment he thought should be made in money. The Zemindars were unwilling to give up land, particularly land of good quality, and the Chowkeedars' jaghires did not exceed Rs. 20 a year. The Chowkeedars were generally Pasees, and given to robbery. Without at least Rs. 2-8 a month respectable men would not take the office. A dismissal even if accompanied by imprisonment was not much dreaded. Mr. Thornton therefore proposed that the jaghires should be commuted for Rs. 2 a month. Mr. Lowther, the Commissioner supported these views. The Government however held to the Board's letter of 14th August, 1840. This letter, given in the Appendix, lays down the principle that by an assignment of land all parties contribute a fair share to the Police, Government giving up revenue, the Zemindar giving up rent, the people giving certain perquisites. A commutation may be fair, but if additional policemen are added the people cannot in settled districts be forced to pay, and in new districts the Chowkeedar will practically be paid out of the jumma. To pay village policemen out of the revenue seems a doubtful mode of raising a State Police. Mr. Muir carried out these ideas, and he increased the watchmen from 215 to 370. The average number of houses to a watchman was then 58. The Chowkeedars were paid in land.

In Goruckpore, the Commissioner in 1844 reported that Mr. Reade's system which was peculiar chiefly from the establishment of supervising village police officers called Zillahdars, had broken down. It was soon after abolished. The number of houses to a Chowkeedar was 50.

In Agra, Mr. Mansel enforced money payments, and in

Humeerpore, and Mozuffernugger and Muttra, money payments were enforced. In Budaon, the Settlement Officer granted jaghires. In the Dehra Dhoon a compromise was effected, and the payments made in grain, &c.

In Delhi, Mr. John Lawrence enforced money payments Rs. 3 to the Chowkeedar and Rupee 1 to the Bullahur. In this district there was an odd system of keeping watch by lot, the names of the villagers being written on bits of potsherd, and drawn out at random by the Putwaree.

In Allahabad jaghires were allowed by Mr. Montgomery who however protested against the system. In Banda money payments were made, and latterly the Lieut. Governor ordered that in all future settlements a money allowance should be provided. Thus it is evident that the wise and judicious principles laid down by Lord Auckland were upset within a month of their promulgation. Two-thirds of the Chowkeedaree jaghires exist only on the face of the settlement records, but the Chowkeedars cannot complain because they cannot reach the central station. Payments in money would introduce a more efficient class of men. The Appendices contain the letters summarized above.

THIRD PUNJAB REPORT.

India Records, No. XVIII.

THIS is the Third Punjab Report. It includes a period from 1st May, 1853 to 30th April, 1856. The information is brought up to date in all branches except the judicial. Sir John Lawrence describes the country:—

British territories, ...	sq. miles,	81,000
Area of Dependant territories, ...	„ „	1,00,000
Total area, ...		1,81,000
Population of British territories, ...		1,80,00,000
dependant, ...		70,00,000
Total population, ...		2,00,00,000
Revenue of British territories, ...	£	20,00,000
dependant, ...		15,00,000

Total revenue, ... £ 35,00,000

The border district stretches for 800 miles, is occupied by 30 warlike tribes, and is controlled by a powerful military force. The forces under the direct control of the Chief Commissioner

comprise an Irregular force of 18,700 men, and a Military Police of 9765 men.

The head of the Administration is the Chief Commissioner. He is assisted by a Judicial and a Financial Commissioner. The head quarters of all are at Lahore, the political capital. There are seven divisions, each with a Commissioner, and there is a Chief Engineer for Public Works, Civil and Military.

Judicial. It has been shewn in former reports that in the Punjab there is a short and clear code, a system of procedure which provides for the attendance of the parties and a summary decision. There are Small Cause Courts scattered all over the country. Every month the reports of every Court are transmitted to head quarters. At the close of the year the figures are made up, averages struck, and a brief critique from superior authority warns officers of the defects apparent, or the ends to be next attained. Every district is parcelled off into Tehsildarces. Every Tehsildar is a Judge of Causes not exceeding Rs. 300. There are 104 of these Courts. Each Court has on an average jurisdiction over 784 square miles, and 1,22,286 souls. No suitor can be more than 14 miles from one of these Courts. About two-thirds of the business of the country is performed in these Courts. There are 111 Regular Courts presided over by Deputy Assistant and Extra Assistant Commissioners. The procedure in both is the same. In 1854, 59,848 suits were tried for property valued at Rs. 43,86,208. In 1855, 61,829 suits were tried for Rs. 45,05,797. The average value of a suit was in 1854, Rs. 72, and in 1855, Rs. 73. About two-thirds of the suits are for sums less than £5. The suits are generally on bond debts, ceremonial dues, and mortgages. Almost all litigation about land is decided by the Revenue Courts.

In 1854, the average duration of a suit was 28 days. In 1855, it was five days less. The cost in 1855 was only Rs. 4-13-3 per cent. Arbitration is employed in about one-third of the cases. In 1855 there were 33,366 executions to 61,829 suits. Only 8 per cent. of decrees were appealed against. Only 20 per cent. of appealed cases were modified or reversed. The privilege of appeal is much valued.

Criminal Justice. The ratio of crime to population stands as follows :—

YEAR.	Total Crimes and Miscellaneous Offences.	Total Population.	Crimes and Offences to Population.
1854..	45,715	1,27,17,821	1 to 278
1855..	41,268	1,27,17,821	1 „ 308

The ratio exclusive of minor offences is :—

YEAR.	Total of crimes, exclusive of Mis- cellaneous Offen- ces.	Total Popula- tion.	Proportion of Crime to Popula- tion.
1854,..	27,276	1,27,17,821	1 to 466
1855,..	22,002	1,27,17,821	1 „ 578

“ The last-named proportion of one crime to 578 persons does appear to indicate a general peacefulness and obedience to the Laws. It is obvious that in such Territories as these, with races so varying, the ratio must fluctuate considerably. The tracts most free from crime are the prosperous States lying East and West of the Sutlej River. The country round Lahore, and also round Jhelum, is about ordinary in this respect. On the Trans-Indus Frontier, the quantity of crime is comparatively light, but its quality is severe. In the Southern regions of the Punjab, that is, round Mooltan and Leia, the numerical amount of crime is great ; but more than half consists of cattle-lifting, which, though of course a crime, does not, under the usual circumstances of its commission, indicate any great depravity, and in some respects partakes of the character of a nuisance.”

The increase in the amount of crime continued from the annexation to 1855. Crime then decreased. It seems probable that the increase was owing to the improvement of the means of detection, which at last in 1855 began to operate on crime. Heinous crimes such as murder, murderous assault, and robbery with violence are decreasing year by year. Many of the murders reported are in fact mountain raids. Dacoity has never re-appeared. Thuggee is perhaps extinct and certainly dormant. Highway robbery is only prevalent in Native States. Female Infanticide if not extinguished verges on extinction. Even in the lighter crimes a decrease is perceptible :—

	Theft.	Burglary.	Cattle-lifting.
1854,... ..	11,587	4,218	8,177
1855,... ..	9,874	3,498	5,351

Cattle-lifting will be further decreased, but it is a difficult crime to suppress. There is an increase in the number of miscellaneous cases. These cases however are personal grievances, and their increase shews an increasing tendency to seek the protection of the laws.

The per-centage of acquittals to trials stands as follows :—

	1853.	1854.	1855.
Per-centage of acquittals on total number tried, ...	45·58	42·60	37·67
Per-centage of acquittals on con- victions, ...	93·98	77·72	63·96

The average duration of cases before the Magistrate is 9 days, and of cases in which Police are employed 14 days. Nearly 99 per cent. of the witnesses are detained only one day. Less than 6 per cent. of the cases instituted during the year are pending at the end of it. The following is the account of punishments inflicted by Magistrates :—

YEAR.	3 Years.	From 6 Months to 2 Years.	6 Months.	Fined.	Flogged.	TOTAL.
1854,	1,714	5,598	4,294	13,500	2,059	27,165
1855,	1,158	4,610	3,826	16,532	2,078	28,204

It has been an object in the Punjab to substitute fines and stripes for imprisonments. The proportion of stolen property recovered by the Police is about one-third. The estimated value stolen during 1855 was 6½ lakhs. This estimate moreover is the owner's own. Of the serious cases committed to the Sessions about three-fourths result in convictions. Of the appeals from Magistrate's decisions preferred to these tribunals about one-fourth are successful. On the whole criminal justice is improving yearly. "There are few well-informed persons, Native or European, who would not admit that crime is mild and rare, and on its occurrence is vigorously prosecuted and condignly punished."

Police. The Police force consists of "two Corps of Irregular Infantry, seven Battalions of Foot, one Regiment Punjab Cavalry, and twenty-seven Troops of Horse. Their aggregate strength stands at 12,853 men, and their annual cost amounts to Rupees 18,61,572 or £1,86,157, on a population of twelve and three quarter millions. There is one such Military Policeman to 989 people. The Civil Police number 9,123 men, and cost Rupees 8,73,300 or £87,330 per annum. To a population as above given, and to a Territory of 81,625 square miles, there is one such Policeman to 1,395 inhabitants and to 9 square miles. The Civil Police is distributed over 281 Thannahs or subordinate jurisdictions. These jurisdictions contain on an average 102 villages, 290 square miles, and 45,279 persons. The average strength of Civil Police to each jurisdiction will be one head Police Officer, and 32 Policemen. In the larger Towns there is one Watchman to about 520 citizens—these, it will be remembered, are paid by the towns' people. As regards the rural constabulary paid by the villagers, there are 28,879 villages in these Territories, to each there is at least one Constable, so that their strength is not less than 30,000. The agricultural population numbers seven millions of souls, so there is one Constable to every 242 of agriculturists, and to every 2·32 square miles." The Police charges amount to Rs. 24,77,442 per annum. The Military force is thoroughly disciplined and hardly inferior to

Irregular troops. The Civil Police are all dressed and armed alike. "The dress is plain, of a drab colour; the arms are a sword and carbine for the Regular Police and a staff and spear for the Watchmen. The State is put to no expense thereby, for every man finds his own uniform." The import duty levied at the town gates now provides the Town Police. All towns in the Punjab are thus taxed, and many large villages have at their own request been placed under the same system. The people will tolerate no other form of tax. The largest amount thus levied is at Umritsur, where the tax in 1855 produced £5326. The disarming edict remains in full force. There are no arms to be found any where except in Kohat, where arms are necessary for defence against the surrounding tribes. Not a murmur has been heard. The exportation of saltpetre across the frontier has also been prohibited. The independent tribes used it to make gunpowder.

The Thuggee Department is maintained. About 400 Thugs are still at large, but their "devices are utterly confounded." An Industrial School for the employment of Thug approvers has been established at Lahore, and the members of the Muza-bee caste to which they belong are under surveillance. The other criminal classes also are forbidden to move abroad without passports. Torture is punished by long terms of imprisonment.

Jails. The total number of prisoners is 11,802. The total cost is 4,03,324-7 or 30-9-1½ per head. This is about 25 per cent. less than the average cost three years ago. "The general conduct and condition of the prisoners has been satisfactory. Their rations and clothing are notoriously good, especially as compared with the food and dress of the lower classes. Their wards are clean and fairly ventilated. Their general health is excellent. During 1854 the mortality was only 6·21 per cent. And during 1855, 5·07 per cent. on the aggregate of prisoners. In two Jails on the Frontier there have been epidemics, which equally afflicted the neighbourhood. In two Jails also (Rawul Pindee and Dhurmsala) the prisoners suffered in health while constructing the prison buildings. The abolition of out-door labour generally, and the substitution of intramural occupation effected in 1853, have had the best effect, both on the *physique* and the *morale* of the prisoners. The interior of the Jail now resembles an Industrial Institution. There has been no *emeute* or attempt at disturbance within the years under report. Escapes from Jail have been rare. In 1854, only 60 prisoners broke Jail, of whom 48 were recaptured, and 38 during 1855, of whom again 33 were recaptured. Reccommitments on second convictions are becoming less fre-

quent." About half the prisoners are employed on manufactures. The value of the work done of all sorts in 1855 was Rs. 1,61,541. The Jails turn out floor-cloths, rope, country paper and blankets. Lithographic Printing Presses are also at work. "At the close of 1854, only 745 prisoners in all the Jails could read and write; by the end of 1855 the number had risen to 1,350." The following table shews the comparative results of Jail management in different Presidencies:—

	Bengal.	N. W. Pro- vinces.	Punjab.
	1854-55.	1854.	1855.
Average annual cost of each Prisoner, ...	Rs. 37-10-4	Rs. 33-4-11	Rs. 31-8-7
Average per-centage of Mortality on total number of Prisoners, ...	7-04	4-52	5-07
Per-centage of Escapes on total number of Prisoners, ...	0-70	0-66	0-29

Revenue: Land Tax. The land tax comprises three-fourths of the State's resources. "The cultivation, though considerable and increasing, is far from being fully developed; not more than one-fourth of the total area is cultivated. This cultivation, though greatly dependent upon rain, is yet for the most part maintained by irrigation from wells or canals. The great staples are cereals. Three-fourths of the crops consist of wheat, barley, Indian corn and maize of all sorts, and rice. In various parts, sugar (of excellent quality), gram, cotton, indigo, linseed, turnips, pepper, tobacco, turmeric, poppy, hemp, vegetables, are grown; and in all places, some or other of the above products are to be found. But all the miscellaneous products last named united do not cover more than one-fourth of the cultivated area, the rest being occupied by cereals. There is vast pasturage, and there are enormous numbers of sheep, goats, camels and bovine-cattle, the latter of stunted breed. The cultivators are essentially 'peasant proprietors.' There are no farmers or middlemen, and generally no great land-lords. As a rule, each man owns and tills his own glebe, upon which he pays the Revenue and pockets *all* the profits." The proprietors engage with the State by villages, every ryot being liable for every other. The reduction of taxation caused by the summary settlements is estimated at 50 lakhs of rupees a year. The settlement has been fixed in the Cis and Trans

Sutlej States for 20 or 30 years. In the Punjab Proper the term is ten years, with a proviso that it may be further prolonged. "These assessments have now been completed in the Cis and Trans-Sutlej States, in the upper portions of the Barea Doab (comprising the Sikh Manjah,) and of the Rechna and Chuch Doabs, that is, all the Northern region between the Rivers Beas and Jhelum. Enquiry preliminary to such assessments is progressing in all remaining parts of the Punjab, except the Trans-Indus Frontier and the Mountainous Huzara. The portion already settled is the richest in the whole Territory, and the Revenue regularly, and for the present finally, assessed, amounts to ninety-five lakhs, or nearly two-thirds of the whole Land Tax. The remaining one-third or thirty lakhs will be shortly assessed, and within the next five years, the entire Land Tax of these Territories will have been placed upon a definite and satisfactory footing." A further reduction of Rs. 23,40,675 has been caused by these surveys, and the total decrease is not less than twenty-five per cent. "The rate of assessment per acre per annum in the Cis-Sutlej States is Rupee 1-2-4 or 2s. 3½d.; in the Trans-Sutlej States Rupee 1-15-7 or 8s. 11½d.; in the Upper Barea and Rechna Doabs Rupee 1-6-5 or 2s. 9½d.; in the Upper Chuch Doab Rupee 1-2-7 or 2s. 3½d. It will be observed that the rate diminishes as the settlement progresses Westward, the country being poorer; the same result will occur in the Southern Districts. It is estimated that a peasant proprietor cultivates on an average 8 acres, and at a mean rate of assessment (say Rupees 1-4 per acre) would pay Rupees 12 or £1-4-0 per annum to the State. From this point of view the amount would not seem heavy. Again, from searching and accurate enquiry in the Settlement Department, showing the exact yield and value per acre of every kind of crop, it has been ascertained that the Government demand does not exceed one-fifth of the gross value of the produce in rich tracts, and one-sixth, or one-eighth, or even less, in poor tracts." In 1848, the rebel Sikh Chiefs declared in their proclamation that the British Government with their low assessment had sacrificed the State Revenue. The jaghiredars complain that our low rates reduce their revenues one-half. "But since Annexation the lapses and resumptions have balanced the reductions of assessment; for, as regards actual realization, the tax yielded Rupees 1,59,40,722 or £15,94,072, for 1850-51, the highest year, and during the last year, 1855-56, it has still yielded Rupees 1,50,00,650 or £15,00,065." There was substantial reason for these reductions. The classes deprived of bread by Annexation turned to agriculture. A series of good harvests occurred, and prices fell nearly 50 per cent.

The great remedies for this fall of prices are the introduction of new cultivations and the creation of facilities for exporting. The Punjabees cannot export to the north or west for the countries in that direction are poor. They cannot export to the East for there is abundance already. They can only export to the South, that is to Kurrachee. Sind and Punjab wheat is already exported at a profit to the Mauritius. Some 1,50,000 maunds of produce now with difficulty find their way down the Indus. "That the Punjab must be producing more than it can consume is easily calculated. The cultivated area has been returned at 1,27,51,151 acres. Some three-fourths of this area are certainly grown with articles of daily food, namely, wheat, barley and Indian corn, maize and rice. At an ordinary average of production per acre, namely $6\frac{1}{2}$ maunds, some 8,01,64,616 maunds or 28,63,022 tons may be produced annually. There are thirteen millions of souls; at an ordinary rate of consumption per annum of about $4\frac{1}{2}$ maunds or 360 lbs. to each person, they would consume 5,90,00,000 maunds or 21,07,143 tons in a year, which deducted from the aggregate produced leaves a surplus of 7,77,481 tons, which surplus, though attained by a rough calculation, will give some idea of the actual state of the case."

For the last three years the uncollected balances have been an inappreciable fraction. In only 16 instances were coercive measures adopted during 1855.

The collection of revenue costs Rs. 4,67,850 per annum or 3 per cent. on the receipts. The suits relating to rent or proceeds or possession have averaged 21,352 per annum for 3 years.

Customs. There are now no customs levied in the Punjab, except on some drugs passing the Kangra frontier.

Excise. Spirits, Drugs and Salts are subjected to an excise. The monopoly of drugs is made over to farmers. The system diminishes the culture of opium, which might be profitably increased. Sir John Lawrence discusses this point, and remarks that the revenue from the Excise amounted in 1855-56 to Rs. 6,07,578.

Salt. The Salt is held by Government as a monopoly. It is excavated from the mines of the Salt Range and sold at Rs. 2 per maund. In the Kohat district the price is only 2 or 4 annas a maund. The sale of Salt in 1855-56 amounted to 9,65,860 maunds, and the receipts to Rs. 19,31,720. There never was so much Salt eaten in the Punjab as now. The working of the mines has been improved. The cost of collection is Rs. 2,54,000 or 13.75 per cent. per annum.

Stamps. The rate for stamps in the Punjab is only half that which prevails in the remainder of the Bengal Presidency. The Stamp revenue amounted to Rs. 3,07,865, the Post Office Reve-

nue to Rs. 31,58,115, the canal water rent to Rs. 1,82,476. All these except the revenue from the Post Office gradually increase. The Tribute paid by feudatories in the Cis-Sutlej States amounted to Rs. 4,87,205, the miscellaneous ordinary revenue to 7,16,787, and the extraordinary to 8,73,570. "To conclude this important Section, it may be safely urged that the Punjab Revenue is in a sound and satisfactory state. It has been seen that the Land Revenue, in spite of many vicissitudes, is still buoyant, and through the accession of lapses and resumptions still maintains its proper figure. On the other hand the Revenue for Excise on Salt, Spirits, Drugs and from Stamps is annually rising and has become *nearly double* since Annexation. This increase is the more satisfactory in that it results *not* from direct collections, but *indirectly from enhanced consumption of the dutiable articles.*"

Education. In 1856, Mr. W. D. Arnold, son of the late Dr. Arnold was appointed Director of Public Instruction. A scheme drawn up by him has been submitted to the Supreme Government. The existing statistics of education are as follows :—

DIVISIONS.	Indigenous Schools.	Scholars.	Population.	Proportion of Schools of to Popula- tion	Proportion of Scholars to Popula- tion.
Cis-Sutlej States, ...	332	3,506	22,82,111	1 to 6,873	1 to 650
Trans Sutlej States, ...	536	6,237	22,73,037	1 387	364
Lahore, ...	1,270	12,753	21,17,894	1,667	166
Jhelum, ...	774	5,782	17,62,488	2,277	304
Leia, ...	No regular Schools.				
Mooltan, ...	212	2,186	9,71,175	4,581	404
Peshawur, ...	198	1,128	2,96,364	1,496	262
Total, ...	3,372	31,692	91,10,341	2,701	288

Besides the above, there are Schools of a superior kind, established either by Government, or under Government auspices, at Umballa, Ferozepore, Simla, Jullunder, Hoshiarpore, Kangra, Umritsur, Sealkote, Guzerat, Jhelum, Rawul Pindie, Shahpore. There are also some thirty-five Schools scattered about in the interior of Districts. There are good Missionary Schools at Lahore, Umritsur, Peshawur, Loodianah, Umballa, Jullunder, Kangra, and Kotegurh in the Hills. The Indigenous or Village Schools, are as yet of the rudest description." The teachers are paid by fees. It is proposed to found 30 Schools at the head quarters of districts, 100 Schools in the interior of districts, 4 Normal Schools, and 1 Central College at Lahore. The cost of all, Director and 2 Inspectors included would be 3 lakhs of rupees a year. £1500 per annum should be allotted to Grants in Aid. It is expected that the people will pay 1 per cent. cess on their *jumma* for education. In the towns part of the municipal revenue

may be devoted to education. The people will probably contribute £25,000 a year, and with the State grants and this sum education may be set on foot. Provisional sanction has been obtained for this plan, and the educational Staff has been already nearly organized. "At the Head-Quarters or Central Station of almost every District a School has either been founded or taken under management; one Normal School has been commenced; some 11,000 small text and school-books have been distributed." Vernacular education will be the main object of the department, Oordoo being the language principally employed.

Public Works. In May, 1854, the control of all Public Works was made over to the Chief Engineer. At the same time a Director of Canals was appointed; up to May, 1854, there had been 5,229 miles of road constructed at a cost of Rs. 54,50,000. Since that time 3,520 miles have been constructed. The great line is the one from Kurnal to Peshawur, the works on the latter half of which are of the most important character. Between Kurnal and Ferozepore the road is open except in the valley of the Murkunda. From the Sutlej to Lahore the road is only partly made, the space between the Sutlej and the Beas being only planned. From Lahore to Peshawur the road is open, but a great number of bridges have to be constructed, and none of the road is metalled. Bridges generally speaking, have yet to be made in the Punjab, but some 1500 of sizes have been constructed. No Railroads have been constructed in the Punjab. Sir John Lawrence however describes one projected from Umritsur to Mooltan. This line will connect the Punjab and the North West with Kurrachee via the Indus and its tributaries. From Kurrachee to Hyderabad a line of 123 miles is already advancing. From thence to Mooltan a distance of 302 miles steamers can be employed. From thence the Railroad would extend to Umritsur. That city is already the emporium for the trade of Thibet, Cashmere, Affghanistan and Central Asia. Its trade amounts to 8½ millions sterling a year. Almost all this trade would be devoted to the new line. The traffic with Kurrachee by the five rivers already amounts to 35,000 tons per annum. The surplus production, even now amounting to between a quarter and half a million of tons per annum, would thus find an outlet. Sugar is already grown. Indigo of inferior quality is exported; good linseed can be raised. The soil offers unusual facilities for the manufacture of saltpetre. Wool is already exported, and manufactured articles, shawls, stuffs, silks and carpets may be. The passenger traffic between Lahore and Umritsur is 1,000 a day and about 250 ekkas run daily. The Railway might at once realize £10,000 per annum on this

first section 35 miles long. Between Mooltan and Lahore or 250 miles the country is a dead level, hard, and waste. There will therefore be no cultivated ground to buy. The configuration of the country is favourable to Railways. The Doab of the Sutlej and Ravee rises in the centre. From this backbone run all the streams. On the backbone therefore no streams are to be met with, and there would be no expense for bridges. It is however essential to the success of the Railway that the rates should be excessively low.

Canals and Irrigation. The old Canals in the Punjab are not permanent but Inundation Canals. That is they are empty in winter, but carry off the surplus created by the melting of the snows, and remain full all the spring and summer. They are most common in the South West. Those around Mooltan are maintained at an annual cost of Rs. 25,700 per annum. Many old Canals remain however to be cleared out. The new Barce Doab Canal is a permanent Canal. It runs from the Ravee down the Doab between that river and the Sutlej from North to South. This work will cost probably a hundred lakhs of rupees, of the main branch, 265 miles long, 135 miles have been excavated. Of the Western Branch, 74 miles long, 60 have been excavated. The Eastern branch is but begun. Sir John Lawrence proceeds to describe the works and observes that Rs. 50,93,660 have been expended. The old Huslee Canal, 110 miles long is efficiently maintained. It costs Rs. 25,205, and brings in Rs. 87,315. Other Canals have been proposed, but ought to wait for means of exportation.

Military. "Since May, 1854, important works have been carried on at Peshawur, Nowshera, Rawul Pindee, Mooltan, the Hill Stations of Kussowlie and Dugshaie, and the Sanatoria of Murree and Dhurmsala. At Peshawur Barracks for two Regiments of European Infantry, and for two Troops and five Companies of European Artillery, have been under construction. At Nowshera (on the bank of the Cabul River about 80 miles from Peshawur) the station has been altogether formed. At Rawul Pindee Barracks for one European Infantry Regiment have been constructed. At Kussowlie Barracks for one Regiment of European Infantry, are now nearly ready. At Dugshaie Barracks have been built for 200 convalescents. At Murree excellent accommodation has been nearly completed permanently for 200 men (European Invalids) and at Dhurmsala for 80 men. At Mooltan Barracks have been built for one Company of Artillery. At Ferozepore a first class Arsenal, has been advanced to a forward state. A smaller building of a similar kind has been erected at Jhelum." The Military expenditure in 1854-55 was Rs. 26,00,000 and in 1855-56, Rs. 80,00,000.

The barracks are unusually large each man having from 2000 to 2,500 cubic feet of air. It now costs £1,00,000 to house an European Regiment, and a first class cantonment costs thirty lakhs of rupees. The Civil works completed have been :—

		<i>Number of Cost. Buildings. Rs.</i>	
Kutcheries, ...	4	71,933	
Jails, ...	5	1,30,336	
Revenue and Police Stations combined,	4	24,603	
— Stations, ...	19	1,13,481	
Head Police Stations, ...	41	71,810	
Minor Police Stations, ...	146	43,666	
Supply Depots, ...	52	53,129	
Caravanseraes, ...	53	91,127	
Wells and Tanks, ...	159	62,093	
Petty Works, ...	488	1,15,636	
Total, ...		971	7,77,954 Rs. or £ 77,795

The total expenditure has been :—

	1854-55.	1855-56.	Previous Ex- penditure.	Grand Total.
1. Roads,.....	£ 3,70,000	£ 1,60,000	£ 5,92,460	£ 11,22,460
	Rs. 37,00,000	Rs. 16,00,000	Rs. 59,24,600	Rs. 1,12,24,600
2. Canals,.....	£ 2,54,000	£ 1,82,500	£ 2,78,800	£ 7,15,300
	Rs. 25,40,000	Rs. 18,25,000	Rs. 27,88,000	Rs. 71,53,000
3. Civil and Mis- cellaneous, ...	£ 90,000	£ 5,500	£ 1,70,000	£ 2,55,500
	Rs. 9,00,000	Rs. 55,000	Rs. 17,00,000	Rs. 26,55,000
4. Military,.....	£ 2,60,000	£ 3,00,000	£ 5,82,100	£ 11,42,100
	Rs. 26,00,000	Rs. 30,00,000	Rs. 58,21,000	Rs. 1,14,21,000
Total,.....		£ 9,74,000	£ 6,48,000	£ 16,23,360
	Rs. 97,40,000	Rs. 64,80,000	Rs. 1,62,33,600	Rs. 3,24,53,600

Post Office. Sir John Lawrence proceeds to describe the postal arrangements. On the main lines the post bags are carried in good weather by carts, in bad weather by horsemen. There is a Government bullock train from Kurnal to Peshawur. On the line from Lahore to the South West however the bags are carried by runners. There is an effectual district post, from all police posts to head quarters.

Electric Telegraph. The Electric Telegraph connects Kurnal and Peshawur a distance of 520 miles. There is nothing peculiar to the province in its history, construction, or use.

Marine. "The exports of the Punjab by water carriage down the Five Rivers at present consist of cereals, indigo, sugar, cotton, linseed, rice, saltpetre, wool, oil-seed, spices, silks. The

return traffic consists of piece-goods, spices, dye-wood, Europe stores, and bullion." The native boats which convey most of this produce are very primitive, holding from 400 to 600 maunds. They draw 4 or 5 feet. In the winter they are more lightly loaded and draw only $2\frac{1}{2}$ feet. The freightage from Lahore to Kurrachee is about £2-16s. a ton. The voyage occupies at least 35 days. The last return on these boats taken below the junction of the 5 rivers "for the third quarter of 1855-56 showed 668 boats, passing down with cargo of 2,41,185 maunds or 8,613 tons, and 159 boats passing up with cargo of 23,876 maunds or 835 tons—in all 827 boats, with cargoes of 2,64,561 maunds or 9,447 tons." The steamers of the Indus flotilla ply between Mooltan and Kurrachee. Their charge for freight is 10 or 12 As. a maund. The time consumed is 12 days down and 25 days up. In 1855 they earned Rs. 11,95,931. Steamers of $2\frac{1}{2}$ feet draught could navigate all the rivers of the Punjab.

Finance. The following is the financial abstract of the three years included in the Report :—

	1853-54.			1854-55.			1855-56.		
	Punjab Proper.	Cis and T. S. States.	Total.	Punjab Proper.	Cis and T. S. States.	Total.	Punjab Proper.	Cis and T. S. States.	Total.
Revenue, Ordinary, ...	1,29,29,332	60,54,536	1,89,83,868	1,32,56,067	61,41,322	1,93,97,389	1,31,48,820	61,04,544	1,92,53,364
Extraordinary, ...	5,02,150	1,57,147	6,59,297	4,07,883	1,79,066	5,86,949	6,01,999	2,71,572	8,73,571
Total Rs. or £ ...	1,34,31,482	62,11,683	1,96,43,165	1,36,63,950	63,20,388	1,99,84,338	1,37,50,819	63,76,116	2,01,26,935
	13,43,148	6,21,168	19,64,316	13,66,395	6,32,038	19,98,433	13,75,081	6,37,611	29,42,548
Expenditure, Ordinary, including all Establishments, ...	90,51,749	20,46,684	1,10,98,433	88,74,789	19,75,073	1,08,49,862	89,67,725	19,62,059	1,09,29,785
Ditto, Extraordinary, including Public Works, ...	29,42,019	6,14,873	35,56,892	54,04,125	5,15,147	59,19,272	43,33,790	10,66,165	53,99,955
Total Rs. or £ ...	1,19,93,768	26,61,557	1,46,55,325	1,42,78,914	24,90,220	1,67,69,134	1,33,01,515	30,28,224	1,63,29,739
	11,99,376	2,66,155	14,65,532	14,27,891	2,49,022	16,76,913	13,30,151	3,02,822	16,32,973
Grand Total of Income, ...			1,96,43,165			1,99,84,338			2,01,26,935
" " of Expenditure, ...			1,46,55,325			1,67,69,134			1,63,29,739
Surplus Rs. or £ ...			49,87,840			32,15,204	4,49,304		37,97,196
			4,98,784			3,21,520	44,930		3,79,719
Deficit Rs. ...				6,14,964					

It must be remembered that since annexation £1,45,32,495 has been expended on public works, 37,30,749 having been spent in the past year. Exclusive of that source of expenditure, the annual statement stands as follows:—

		Punjab Proper.	Cis & Trans-Sutlej States.	Total.
Ordinary Revenue of 1855-56, ...	Ra.	1,81,48,820	61,04,544	1,92,53,364
Deduct Expenditure, Ordinary, ...	"	77,87,818	14,23,635	91,61,453
Remains surplus, ...	Ra.	54,11,002	46,80,909	1,00,91,911
or	£	6,41,100	4,68,090	10,09,191

None of the establishments have increased. Sir John Lawrence calculates the clear profit already received from the Punjab at Rs. 5,55,55,851 figures in support of which statement are supplied.

Ecclesiastical. "From May, 1854 to May, 1856, creditable progress has been made with the Umballa Church; the Peshawur Church has been half constructed; the Meean-Meer Church is far advanced towards completion; the Rawul Pindee Church has been successfully finished. Churches have been commenced at Dhurmsala and at Jhelum. A Church has been planned at Mooltan. Progress has been made with the Murree Church. The Kussowlie, Jullunder, and Anarkullee Churches have been improved. A small Church has been erected at Goojranwallah from private subscriptions and the Church Building Society's Funds." There are 17 Chaplains in the Punjab.

Political. In January, 1854, the Sikh Sirdars were released from imprisonment, and their pensions increased, and in March of the same year the Goorchanees and Kusranees of Dhera Ismael Khan submitted. In February, 1855, the Bussee Khail Afreedies were embargoed and surrendered. In March the Borce Afreedies submitted. In April, 1854, Nazir Khair-collah, a merchant who had assisted Colonel Stoddart and Capt. Conolly received compensation for his losses, and a pension of £600 a year. In September the Michnee Momunds were defeated. In the autumn an Envoy from Kokan arrived, entreating aid against the Russians. He carried back friendly letters. On 30th March, 1855, a treaty was concluded between the British Government, and the Ameer of Cabul. The treaty binds the British Government not to interfere with Dost Mahomed's possessions, and binds the Ameer to regard the faithfuls and enemies of the British Government as his own friends and enemies. In 1855, Mumdot, a Cis-Sutlej State was sequestered. The country was relapsing into barbarism. The Nuwab

was therefore deprived of his seignorial jurisdiction. Sir J. Lawrence describes other proceedings of no importance, and proceeds to mention a quarrel between Golab Singh, and his nephew. The Maharajah seized his nephew's fiefs. This man was found wanting at the critical moment. On the other hand the Maharajah was unfaithful to his engagements. The British Government refused to interfere, but remonstrated with Golab Singh. The Rajah was defeated. The Chief Commissioner records some other facts of no importance.

Military. Little has occurred worthy of especial notice. The Irregular Force consists of "ten Regiments of Infantry, five of Cavalry, one Corps of mixed Cavalry and Infantry (the Guides), two Companies of Sappers and Miners, and four Batteries of 30 guns." Their entire cost amounts to Rs. 44,51,137 a year.

Population. On the 31st December, 1854, the census of the entire people was taken in a single night. The people actively co-operated. The general result may be thus epitomized:—

PUNJAB TERRITORIES.	Area.	Popula- tion.	Revenue per an- num. Ra. or £	Persons to square miles.
British Possessions, ...	81,625.24	1,27,17,821	Ra. 1,96,43,165 £ 19,64,316	155.80
Political Dependencies,	1,02,884.95	67,50,606	Ra. 1,40,56,534 £ 14,05,653	65.71
Grand Total, ...	1,84,510.19	1,94,68,427	Ra. 3,36,99,699 £ 33,69,969	105.51

The average per square mile is less than that of any other Presidency. It is 155.80 while that of Bengal is 311.

"There are 26,210 villages in the Punjab, with an average of about 450 persons to each; 2,124 small towns, containing from 1,000 to 5,000 inhabitants; 76 containing from 5,000 to 10,000; 31 cities containing from 10,000 to 50,000; and four first class cities containing more than 50,000 inhabitants, i. e. Umritsur with 1,22,184 souls, Lahore with 94,153, Peshawur with 53,294, Mooltan (including suburbs) with 55,999 souls."

There are $7\frac{1}{2}$ millions of Mahomedans to $5\frac{1}{4}$ millions of Hindoos. The number of Sikhs is believed to be decreasing. The census gives half the people as agricultural, but it is probable that two-thirds are agricultural.

Agriculture. The Commissioner notices several methods in which the cultivation might be improved, and mentions that 25,000 acres were sown in 1855 with linseed. The return was ample, and the profit good. The seed can be sown even on in-

ferior lands. Further experiments are still necessary to improve the fibre.

Forests. The Punjab is bare of trees, but there are forests on the surrounding hills. The Government has established Agencies at Sealkote, Jhelum, Shahpore and Panjee. At present there is but one Agency the head quarters of which are at Sealkote. Rules have been published for protecting the trees, and the copsewood, but it has been found impossible to prevent the firing of the jungle for cultivation. 28,99,365 trees have been planted, and the peasantry have been encouraged to plant trees along the water-courses. No less than 50 millions of trees will however be needed. Sir J. Lawrence subsequently mentions that tea flourishes in the Kangra Hills, and sells at an average of 2s. 8½ per lb. The experiments to introduce the silk-worm have failed, but efforts have been made to improve the breed of cattle and sheep by importing bulls, stallions and rams from England, Arabia and Australia.

Mining. "The Geological Surveyor, M. Marcadieu has examined many localities among the Kangra Hills. In 1855 some iron ore was discovered in the Chumba Hills, near the new Sanatorium of Dalhousie, and a sum of money was placed at the disposal of the Executive Officer of that station. During the present year, 1856, a Committee was deputed to investigate the mineral resources of Kooloo, the North Eastern extremity of the Kangra District. During the last winter, 1855-56, the Geological Surveyor was deputed to visit the Kenana Hills, near the apex of the Doab, between the Jhelum and the Chenab." Iron ore worked by natives exists in the Himalaya. Fuel however is scarce. Coal has not been discovered, and the native ore costs at the mines as much as English sheer iron.

Surveys. "The area surveyed within the past two years has amounted to square miles 17,935, and the cost to Rupees 3,04,667 or £30,466, being at the rate of Rupees 16-15-1 or £1-13-10½ per square mile. There now only remain for this Survey the lower extremity of the country near Mooltan and the lower half of the Doab between the Jhelum and the Indus."

There are 33 Dispensaries in the Punjab, which in 1855 relieved 79,973 persons. The annual cost to the State is Rs. 51,780. A Lunatic Asylum has been established and a Leper Asylum is contemplated. Vaccination extends but slowly, but in 1855, 70,580 cases were reported of which 53,195 proved successful. Sir John Lawrence analyses the system of examinations, summarises the results of the year, and names the officers deserving of commendation.

The Appendix contains financial details, the text of a treaty

of 1855 with Dost Mahomed, and some official correspondence in answer to a charge of misrepresentation brought by Col. Jacob against the First Report from the Punjab.

COMMUNICATION BETWEEN CALCUTTA AND DACCA.

India Records, No. XIX.

On 11th April, 1855, Col. H. Goodwyn, Chief Engineer, Lower Provinces, submits papers on this subject, and especially Lieut. Greathed's Report. The distance from Calcutta to Dhunkalee at present is about 300 miles. By the route proposed it would not exceed eighty miles. Colonel Goodwyn considers a special and qualified Engineer necessary, with staff sufficient to survey the proposed water channel, or to trace the line of Railway. On 30th May, the Secretary, Mr. W. Grey submits the correspondence, and remarks that "the question of an improved communication with Dacca and the Eastern Districts was taken up by this Government in the early part of last year in connection with the line of road which is being opened up beyond Dacca, through Chittagong to Akyab." Lieutenant Greathed was deputed to survey, and the result of his enquiries may be thus stated. A road leaving the ten principal rivers unbridged would cost 18½ lakhs. To place steam ferries over the Ganges, Boreegunga, and Dulaserce would cost 5½ lakhs more. To bridge the seven rivers would cost 35 lakhs. But if it is to be done at all, the road should be made fit for conversion into a Railway. This would bring the expense up to 68 lakhs. It thus appears that the road even without bridges or ferries would cost 18½ lakhs, and would not attract traffic from the water route. The Lieutenant Governor does not therefore recommend it.

Lieutenant Greathed suggests a direct canal for steamers from Calcutta to Dacca. The Lieutenant Governor considers this *prima facie* a startling project. He prefers Major Abercrombie's plan, and would propose that a competent officer be deputed to "conduct a complete and careful enquiry as to the practicability of opening a route for river steamers direct from Calcutta to some point in the Sunderbuns, at an expense not disproportionate to the advantages that would be obtained." The Lieutenant Governor encloses a prospectus of the Eastern Bengal Railway Company, and believes that a railway would not be unremunera-

tive. Mr. Grey subjoins a communication from the Calcutta Chamber of Commerce advocating a branch Railway on the Calcutta side of the river.

Lieut. W. H. Greathed on 4th January reports that the present line of road from Calcutta to Dacca, a distance of 177 miles divides itself into three Sections. The first from Calcutta to Jessore is 71 miles long, and is metalled and in order to Baraset. From Baraset to Jessore it is unmetalled, but above the reach of inundation. The cultivators however cut through the road to let off any excess of moisture, and this practice together with the stiff character of the mud renders the road very bad in wet weather. It has two unbridged rivers of 180 and 251 feet width. The second sometimes becomes three times as deep and wide as in ordinary seasons. From Jessore to Furreedpore the road is raised and in places metalled to Pookerea. From thence for 34 miles there is no road at all. The flood waters cover it to a minimum depth of 9½ feet. A line of road to be safe must have 13½ feet of embankment. There are six rivers two of which in flood are 200 feet wide, one 300, one 400, one 1200, and one 8½. The last is 60 feet deep. There are minor streams. There is a low ridge which runs east and west across the line of drainage, but from local circumstances described by Lieut. Greathed the road cannot be carried along that. From the end of this 34 miles to the Ganges the road is raised, but insufficient in breadth. There are 3 unbridged rivers in this bit. From the bank to Huree-rampore is a mere track. From thence the road is sometimes a raised road, sometimes a mere track, always too low, and always deficient in bridges.

Lieut. Greathed observes that the post is now 70 hours' proceeding from Calcutta to Dacca, or 2½ miles an hour. The transit of troops is so slow as to cause loss and inconvenience to the State, but the general traffic is carried on via the Sunderbunds at the following rates :—

Description.	Value per Ton.			Cost of transit per Ton
	<i>Rs.</i>	<i>As.</i>	<i>P.</i>	
Rice, ...	31	8	7	4.59
Indigo, ...	4,201	9	7	9.35
Safflower, ..	560	3	2	12.43

This is greatly increased by the cost of insurance, estimated at from 5 to 10 per cent. The rates are thus increased to :—

ARTICLES.				Actual cost of Transit.
				Per mile.
Rice,	..	..	..	6.35
Indigo,	..	..	..	130.62
Safflower,	...	..	..	43.81

The rates must be considered high, and mercantile communication is therefore imperfect. Lieut. Greathed discusses and condemns the proposal to make a fair weather road. The road to be of real use must be metalled and maintained above the flood levels and "in the construction of such a road from Jessore to Furreedpore expense is the only serious difficulty." Lieut. Greathed proves this statement in detail, defines the line it should take, and estimates the expenditure at 18½ lakhs for the road and 5½ lakhs for three steam ferries, with Rs. 400 a mile for maintenance, and proceeds to discuss a Railway and a Canal. The country "is practically on a dead level (the extreme difference on the 130 miles sectioned being but 13.72 feet.)" The export to Calcutta of goods amounts to :—

	Maunds.	Value Rs.
From Dacca, ...	15,59,125	27,81,070
„ Naraingunge, ...	19,01,000	40,27,875
<i>Maunds,</i>	34,60,125	<i>Rs.</i> 68,08,945

Fifty per cent. may be added to this for the export of smaller places. The import of salt only into Dacca was 2,79,986 maunds in 1851-52, and though this has decreased it would rise again with a Railway. The total of imports is perhaps 2,89,645 maunds a year. The Serajunge trade is

Exports,	... ..	Mds.	36,30,000
Imports,	... ..	„	8,27,600

The Exports are worth nearly a million sterling. Lieutenant Greathed enters into further calculations, and arrives at the conclusion that "we then have 1,12,575 tons as the average quarterly trade in *one direction* or an annual amount of 4,50,300 (four hundred and fifty thousand three hundred) tons, which might profitably be conveyed by a Railway established between Calcutta and Dacca at a lower freight than that which obtains at present. This would, indeed, appear enough to do, being more than is conveyed in a year by any Railway in the United Kingdom, with four exceptions." Lieutenant Greathed believes a canal of 100 feet wide and 10 deep would allow long narrow

screw steamers to attain a velocity of 15 miles an hour. There would be no difficulty in attaining such a depth. Lieutenant Greathed describes the work, and observes "from the Burraseeah River there is a continuous and nearly direct line of creeks to Furreedpore, open in the rains, and in part during the whole year. From the Ganges to Dacca the case is similar, and with the exception of the creek across the tongue of land between the Dulasserree and Boreegunga the direction is almost continuously straight. If these could be converted into Canals, it would establish 74 miles out of the whole distance, 177, at a very small cost." He considers it impossible to estimate the cost. The Superintending Engineer, Major W. Abercrombie, on 30th March, reviews Lieutenant Greathed's Report, concurs as to the inutility of a road, agrees that a Railway would pay, and gives the following opinion as to the line to be adopted. "As respects the line or direction of the Rail, it ought, in my opinion, to pass through Jessore and through or near Furreedpore ; it ought also, if carried through Dacca to be continued to Naraingunge so as to intercept the traffic from Mymensing, Sylhet, and Assam ; Feringee Bazar might be made the eastern terminus in lieu of Naraingunge, but this is a matter for consideration and report ; if determined on, a common road might connect Dacca, and perhaps Naraingunge, with the Rail. At the western end, I think that the line through Dum-Dum and Baraset should be abandoned ; the Rail should be carried from Calcutta to Barrackpore and thence across to Bongong and Jessore." He considers Lieutenant Greathed's estimates generally too low, and does not recommend the Canal. Admitting a speed of 12 miles an hour, the steamers could only run 14 hours a day, and "there are several other objections scarcely necessary to enumerate in the great vigilance required to protect the high embankment across the low country from burrowing animals during the dry weather, the expense of constructing and maintaining communication across the great rivers ; the doubtful expediency of entirely damming the inundation across the spaces between the rivers, &c. &c."

The true remedy for existing evils he conceives will be found in a Canal from Calcutta to the Mutlah, which Major Abercrombie does not doubt, "might be connected with an upper route to that point from Khoolna." This question should be thoroughly examined and reported on by a qualified person with sufficient staff. On 28th March, Mr. W. F. Fergusson submits the prospectus above mentioned. On 24th August, Lieutenant Col. W. E. Baker, Secretary, Department Public Works, reports the decision of the Government of India. That Government concurs with "His Honor the Lieutenant Governor of Bengal, in considering that Lieutenant Greathed's survey

demonstrates the impracticability of forming a metalled road from Calcutta to Dacca at any reasonable cost." They desire to complete the road from Calcutta to Jessore. They have recommended this proposal to the Court of Directors. They believe that the road from Jessore to Khoolna, where all steamers passing through the Sunderbunds touch, may also require to be raised into a second class metalled road. They disapprove the Canal, but with regard to the Eastern Bengal Railway observe "should the projectors of this important measure be disposed to pursue the investigation, and should they hereafter be able to bring forward calculations of cost and returns based on reliable data and exhibiting a fair prospect of success, the Government of India, I am directed to state, will be prepared to submit the project to the Honorable Court of Directors, with their recommendation that the Line be conceded to the Company represented by Mr. Fergusson, on the same terms that have been mutually agreed upon between the Government and the existing Railway Companies."

On 15th January, 1856, the Under-Secretary reports that the Government of Bengal has appointed Mr. Smith, Civil Engineer, to make the investigations suggested by Major Abercrombie. Mr. Smith's report bears date 10th May, and on 22nd May, the Lieut. Governor submits it, with certain suggestions of detail. Mr. Smith discusses the level reached by the great flood of the Ishamuttee in 1824, analyses the information obtained from native officials, and decides that "the present line of road, extending as far as the west bank of the Juboonah river has not been flooded by the highest inundation ever known." The road between the Juboonah and the Ishamuttee was however covered. "The flood line of 1824 being thus shown to be 20.22 under datum, it follows by the concurrent testimony given at Gyaghatta, Kalipore and Bongong, that the flood line of 1839 (which was 4 feet lower) must have been 24.22 under the same, and this level would have sufficed to lay 4 miles of the road between the two rivers under water."

Mr. Smith describes the existing state of the line, analyses different lines suggested, and recommends a route by old Bongong as crossing the Ishamuttee at the easiest point. On 11th July, the Govt. of India orders estimates to be prepared for the road, including the road from Jessore to Khoolna. The route to be adopted, if the Lieut. Governor approves, is that recommended by Mr. Smith. The Appendix contains estimates for all the improvements, and roads and works suggested or discussed by Lieut. Greathed. It contains also various returns of the trade between Calcutta and Dacca condensed above. Of

these the most important are the returns from Dacca, Narain-
gunge and Serajgunge :—

*Return of Exports and Imports between Calcutta and Dacca
furnished by Mr. Forbes, Secretary, Dacca Bank.*

	Local Value per 100 Mds.	Annual Amount of Mds. of Export.	Boat hire per 100 Mds.
2. Jute, (loose), ...	Rs. 200	Mds. 1,80,000	Rs. 18
Sun, Hemp, (loose), ...	" 400	" 13,000	" 30
Gunny Bags, ...	" 432	" 15,625	" 31-4
Hides, ...	" 1,028	" 9,000	" 16-4
Muslins and Kussida, ...	" ...	" ...	" ...
Safflower, ...	" 2,000	" 20,000	" 37-8
Rape Seed, ...	" 225	" 80,000	" 13-4
Linseed, ...	" 200	" 50,000	" 13-4
Kulai, ...	" 62-8	" 20,000	" 12-8
Teel, (Sesamun), ...	" 125	" 10,000	" 13
Rice, ...	" 112-8	" ...	" 12-8
Dhan, ...	" 50	" ...	" 12-8
Moong, ...	" 87-8	" 7,000	" 12-8
Khessaree, ...	" 62-8	" 5,000	" 12-8
Gram, ...	" 175	" 5,000	" 12-8
Indigo, ...	" 15,000	" 3,500	" 25
Ghee, ...	" 1,600	" 20,000	" 22
Lime, ...	" 30	" ...	" 14
Sugar, ...	" 300	" 10,000	" 14
Tamarinds, ...	" 31-4	" 8,000	" 16
Cheese, ...	" 80	" 1,000	" 19
Soap, ...	" 700	" 2,000	" 18-12
Oranges, ...	" ...	{ 1,00,000	" 110
		{ 200 lacs	" ...
Tea, ...	" ...	" 15,59,125	" ...
Railway Sleepers, ...	" ...	" 15,59,125	" ...
		Imports,	" ...
English Cotton Thread, ...	" 3,750	" 8,000	" 17-3
Piece Goods, ...	" ...	" ...	" 18-12
Moonga Silk, ...	" 15,000	" 300	" 25

*Messrs. Foley Brothers' Return of Exports and Imports—
Naraingunge.*

1	2	3	4	5
NATURE OF EXPORTS.	Local value per 100 Maunds.	Annual amount in Maunds.	Rate of Car- riage per 100 Mds. to Cal- cutta.	Rate of Insurance or transit, or allow- ance made by Mer- chant's in their cal- culations to cover loss or damage aris- ing from present means of transport.
Gunny Bags, large and small, per 100,	9 0 0	5,00,000	Fourteen Rupees on average goods.	Ten per cent.
2 Jute, ...	200 0 0	2,00,000		
2 Safflower, ...	2,500 0 0	30,000		
1 Linseed, ...	200 0 0	40,000		
1 Sesamun or Teel Seed,	175 0 0	50,000		
1 Coriander Seed, ...	50 0 0	30,000		
2 Mustard Seed, ...	200 0 0	1,00,000		
2 Anise seed, ...	150 0 0	7,000		
1 Rice, ...	100 0 0	5,000		
1 Paddy, ...	37 8 0	2,00,000		
2 Chillies, ...	300 0 0	5,000		
2 Onions, ...	50 0 0	20,000		
2 Mascally, ...	50 0 0	90,000		
2 Khasaree, ...	40 0 0	80,000		
1 Kalijeera, ...	200 0 0	5,000		
2 Potatoes, ...	100 0 0	10,000		
2 Mustard Oil, ...	700 0 0	30,000		
2 Kuth, ...	600 0 0	12,000		
1 Mathee, ...	100 0 0	15,000		
2 Sun, (Hemp), ...	300 0 0	35,000		
1 Cotton, ...	900 0 0	10,000		
2 Soap, ...	700 0 0	8,000		
3 Indigo, ...	15,000 0 0	4,000		
1 Lime, ...	40 0 0	1,00,000		
2 Moong, ...	75 0 0	20,000		
3 Deer Horns, ...	300 0 0	10,000		
2 Buffaloe Ditto, per 100,	40 0 0	25,000		
3 Hides, ... per 100,	70 0 0	1,30,000		
3 Oranges, per 100,	0 6 0	1,00,000		
2 Tamarinds, ...	31 4 0	10,000		
2 Turmeric, ...	150 0 0	20,000		

Estimated Statement of Annual Exports and Imports of the Serajungu Market, prepared by Messrs Mackey, Barry and Co.

Description of Merchandise.	No. of Maunds.	Price.	Value. Rupees.	Boat hire to Calcutta. Rupees.	Insurance. Rupees.	Total cost of Transits including Insurance.
<i>Exports.</i>						
Jute, ...	10,00,000	Ra. 2	20,00,000	25	2,50,000	3,50,000
Rice, ...	18,00,000	1-4	20,00,000	25	4,00,000	5,00,000
Mustard seed, ...	2,50,000	2	5,00,000	24-12-9	62,000	87,000
Linseed, ...	1,60,000	2-8	4,00,000	25	40,000	60,000
Dhall, Kaley, &c., ...	1,20,000	1-8	1,80,000	25	30,000	39,000
Sugar, ...	80,000	6-8	5,20,000	25	20,000	46,000
Kar Dolloos, ...	1,20,000	4	4,80,000	25	30,000	54,000
Turneric, ...	25,000	2	50,000	25	6,250	8,750
Ginger, ...	16,000	4	64,000	25	4,000	7,200
Tobacco, ...	1,20,000	5	6,00,000	25	30,000	60,000
Indigo, ...	7,000	150	10,50,000	50	3,500	29,750
Sun. (Hemp), 2,000 mds.	50,000	3	1,50,000	25	26,250	20,000
Hides, 80,000 maunds,	1,000 corgie	15	15,000	25 (800 corgie)	7,500	1,250
Gunny Bags, ...	10,00,000 pcs.	12 per 100	12,00,000	25	60,000	80,000
Total,	36,80,000		91,09,000	25	9,08,750	13,42,950 Ra.
<i>Imports.</i>						
Salt, ...	8,00,000	Ra. 4	32,00,000	Boat hire from Calcutta		
Mule Twist, 2,400 maunds,	400 bales	4,000	1,60,000	25	1,60,000	3,60,000
Piece Goods, 8,000 maunds,	80,000	...	1,80,000	25	8,000	8,800
Iron, ...	15,000	4	60,000	25	2,000	10,000
Brass Pots and Pans,—	1,200	40	48,000	25	3,750	6,750
Spelter, ...	1,000	9	9,000	25	300	2,700
Total,	8,27,600		86,37,000	25	450	8,88,750
Total of Exports and Imports,	44,57,600		1,27,46,000		11,15,650	17,31,700

THE DACCA AND ARRACAN ROAD.

India Records, No. XIX.

ON 28th August, Lieut. G. Sims reports on this road. He explains the delays which had occurred in preparing the report and proceeds to notice the First Division. "The line commences at Daoodcandy on the River Megna, and passing through the Civil Station of Commillah, ends at Chittagong, a distance of nearly 127 miles." This road is an old one about 5 feet in height and 12 in breadth, with 105 brick drains and bridges. Its conversion into a Grand Trunk Road was commenced in February, 1854, and in the following two seasons:—

56½	miles well advanced towards completion,
17	" in progress but not much advanced,
22½	" but little, or not yet commenced.

Total, 96 miles from Chittagong to Commillah in progress."

The labourers are engaged on the petty contract system. They are however unwilling to work at a distance from their homes, and "it results that many contracts in succession (even in the portion from Chittagong to the Fenny, first commenced,) have not been completed." The 31 miles from Commillah to Daoodcandy on the Megna have not been begun, for labourers are not procurable in Tipperah, and the supply from a distance is drained off to Arracan and Akyab. In Akyab, coolies were actually receiving Rs. 35 a month. 46 new brick bridges and drains are required between Commillah and Chittagong to replace the wooden bridges of the old line. Lieut. Sims observes that most of the old bridges between Daoodcandy and Commillah must be broken up, but these 31 miles are for the present passable for troops. European assistance is much required, particularly in brick making. The expenditure incurred in earth-work for this division amounts to Rs. 79,689-7-1 and the total expenditure in round numbers to one lakh of rupees. The remaining earth-work will cost Rs. 1,55,371, and the bridges about two lakhs of rupees. This is exclusive of the bridges between Commillah and Daoodcandy. The Executive Engineer thinks it advisable to adopt monthly payments for labourers, regard being lead to the diminishing number, and the temptations offered in Arracan. The road in the 1st Division will be fully practicable for troops in the ensuing cold season. "The Second Division extends from the left bank of the River Kurnofoolee opposite to the town of Chittagong as far as the Saleedoung Hill Range, which is said to be the border between the Arracan and Chittagong Districts. It is about 85

miles in length, and is in charge of Lieutenant Jervis, of the Engineers, as its Executive Engineer." Lieut. Sims describes the old road, and observes that Captain White's track was never completed, and has been devoured by jungle. Even the trace was found for a considerable extent of country quite useless, and was abandoned. Mr. Sims describes the work required, and observes that "at the close of the first season, or in May, 1854, the greater part of the 35 miles in the plains had received renewals, and a road 12 feet broad, raised to a height (varying from 6 to 12 feet in many parts) sufficient to prevent flooding was made passable for troops. Also in the hilly parts cutting down the jungle, clearing the line to 180 feet width, and grubbing up the roots of the jungle in 30 feet, occupied most of the season, but by its close a 12 feet road in the 30 feet breadth was actually prepared. Also from the point commencing White's trace, to Gurjunecah, on the Bagkhalee, or about 18 miles, the jungle, which was denser and with larger timber than in the preceding part, was opened and cleared to a less width of about 50 feet; and in some parts a passable road, 12 feet broad, raised while the whole was practicable. In the season 1854-55, the Executive Engineer completed the renewal of the 12 feet road in the plains, and then endeavoured to increase the line in the hilly and jungle country from the 35th to the 85th mile from the 12 feet breadth of last season to the 30 feet required for the future Trunk Road." Nearly all the temporary bridges of jungle wood that are required have been constructed, being 154 bridges and 160 drains; the broad streams however remain unbridged, and must be crossed by ferry boats. The expenditure in two seasons has been with establishments about Rs. 1,33,000. The line in the 2nd division will be ready for the march of Regiments in January, 1856. No carts however can travel on it, and the period of its conversion into a metalled Trunk Road must be uncertain.

The Third division commences from the south base of the Saleedoung Hill Range. "It traverses in a southerly direction through the dense forest jungles as lying between the eastern shore of the Naff, and the Hill Ranges, which, at a few miles' distance, run in a course somewhat parallel to the south-east coast of the Bay of Bengal. Through a distance of at least 45 miles of this forest and hilly country the line passes, after leaving Saleedoung until it has turned the River Naaf and emerged into the open and cultivated country about 8 miles to the east of Mungdoo. Thence it continues at no great interval from low hill ranges, for about 16 miles up to the village of Mraughoha, situated about half a mile or so from the sea beach. So far the new line is opened and practicable. Beyond Mraughoha the line will keep

near to the hills for a few miles, until running south they approach the beach near a peculiarly shaped rock called Kyouk Pundoo. Here the road, after passing between two detached hills on the margin of the beach, will be taken in an easterly direction through a dense forest jungle, frequented by wild elephants, to the foot of the loftier range which separates the River Myoo and its valley from the low country and jungles on the sea coast. Thence the ascent to the pass of Mynowtouning will be commenced," a work of immense labour from the peculiar shape of the Range. The line will then cross the Myo at Rutheedoung, and the Moungyne Creek to Akyab. Mr. Sims describes the work, and observes that the road is practicable for troops to Mraughoha. Thence by the coast line they can reach Akyab. It is impossible in the present position of the labour market to state when the good road will be finished. No estimates moreover have been furnished on account of Lieutenant Mead's illness. Mr. Sims speaks highly of the assiduity and success of Mr. Nield, Assistant-Executive Officer, 3rd Division. On 1st October, Lieutenant Col. H. Goodwyn solicits further orders, and remarks that European Overseers are almost unprocurable.

CREEK NAVIGATION FROM AKYAB TO TOUNGOOP.

India Records, No. XIX.

ON 7th January, Capt. W. Dicey, 1st Assistant Master Attendant, reports that "this route is by a series of creeks and small rivers, varying in breadth from 60 yards to 3 miles, perfectly sheltered from the sea, which is only seen at two openings, where the extensive sands and large islands form a complete protection, rendering the communication safe for boats and steamers of a light draft at every season of the year, the least water being 6 feet ; and the tides not exceeding three knots per hour on the springs, and two on the neaps. In the dry season the water is brackish throughout." The banks of the creeks have a few small villages. "Boats, without the aid of the steam, would move with great uncertainty as to time, being dependent on tides, which, although favourable in one creek, would be adverse in another. After passing through the Woing-pyke, on the downward passage, and entering the bay formed by Ramree Island and the main land." A large creek at the base of Mount Surma appears the one best adapted for communi-

cation with Toungoop, being sheltered from all sides. Mount Surma too would afford a good depot for stores and troops. "The least water at the entrance of this creek is 9 feet, and a rise of 6 feet on the neaps would admit vessels of 250 to 300 tons drawing about 13 or 14 feet. When inside, a commodious anchorage is found in 4 or 5 fathoms within a few yards of the nullah already described, as leading up to the village. Vessels of a larger draft should anchor about two miles outside the entrance of the creek in 8 to 10 fathoms, where they may lie with perfect safety at all seasons of the year, and discharge their cargo into boats." From the entrance of the creek to Toungoop is only 8 miles. Capt. Dicey therefore recommends that two small steamers with flats should be attached to this coast. Their draft should not exceed 3 feet. They would carry 500 troops with their baggage, and accomplish the distance between Akyab and Toungoop in three days.

TOUNGOOP MOUNTAIN ROAD.

India Records, No. XIX.

ON 3rd July, 1855, Lieut. T. G. R. Forlong reports on this road. It has cost

"The Arracan Section at Rs. 2,088 per mile.

The Pegu Section at ,, 3,262 ,, ,,

The Meaday Section at ,, 957 ,, ,,

At the end of May, 27 miles had been opened out to a width of "from 15 to 20 feet on each side of the range, being a total of 54 miles out of 80." The gradients are so light that they appear almost intended for a cart road. The great obstacle to work is the shortness of the season, only three months in 1854 and 4 in 1855. This is owing to the fevers which follow the cessation of the rain. It would therefore in Lieut. Forlong's opinion be expedient always to commence with the hill work, some other work which can be carried on in the unhealthy season. Such a practice enables the department to keep its servants instead of depending on chance labour and moreover diminish the comparative cost of superintendence. This might also be reduced in Lieut. Forlong's opinion by substituting officers of the line for Overseers. They cost little more. They make fewer blunders, they control their men better, and they need no spurring. In March, the expenditure

on superintendence was only 6½ per cent. on the total outlay. In the unemployed months it rises as high as 25 or 30 per cent. From the commencement in Sept. 1853 to May, 1855 the expenditure on establishment was 12 per cent. on total outlay. The cost of the mountain sections from past experience is £500 to £700 a mile bridged and metalled. Lieut. Forlong mentions and praises his Assistants, particularly Overseer Magrath, who is recommended for promotion as an Assistant Executive Officer. On 27th June, Lieut. Forlong submits a second report on his labourers and their organization.

The labourers are Burmese from Pegu. They are better than Bengalees or Madrasees, and receive usually.

	<i>Men.</i>	<i>Women.</i>	<i>If paid in sets of a Man and Woman.</i>
Plains, ...	0.3-8 to 0.4.0	0.1-7 to 0.2-0	0.4-0 to 0.5-4
Mountains, . .	0.5-4 to 0.8.0	0.4-0 to 0.5-4	none.

No advances are made, but rice is sold in the camp to them, or an allowance of Rs. 8 to 12 a month is granted to shopkeepers to secure fair rates. The Burmese require kind treatment, personal attention to the men, approval where it is possible to approve, but above all a laugh or a joke. The workmen are organized in gangs under Goungs. These men are paid by the month, and draw a per-centage on the number of their men. At first men of hereditary influence were selected. Now the officers select the ablest. Good Goungs sometimes gain as much as Rs. 50 a month, while indifferent men only earn about Rs. 20. When work is slack or stopped by order the Goung gets from 8 to Rs. 20 a month. From November to May, 2,000 labourers and 1 or 200 carpenters can be kept up, but once Mr. Forlong had 2,300 sets or 4,600 people. In the Arracan Section of the mountain line, 2,000 seems the highest number that can be kept up. Indian workmen do not do well in Burmah. They are too fond of liquor, sickly, and difficult to manage. The Burmese work with a spirit, and the blasting parties are very clever indeed. They want better tools. The Indian labourers become very rapidly demoralized. Of 150 Coringa labourers who were imported in November and who were well looked after and well treated, not 50 are alive, or capable of work from drunkenness and debauchery. The only way to import them is by whole villages, with a promise to employ them for six months in each year. These villages as caste communities would restrain the extreme vice that prevails. Lieut. Forlong adds a memorandum drawn up by him for the guidance of young Overseers. There should be 2 intelligent men who can write to every 100 men. These men

should act as foremen come for orders every evening, and give the orders the next morning. They must shew no anger at non-fulfilment, but simply require the Goung to get the work done, and put down the men who have not done their tasks in the day book. If a task is really too difficult, and the man who has failed is as diligent as the rest, he should be let off. The Government of India on 21st December praises Lieut. Forlong's report, announces the publication of his memorandum on labourers, and promotes Overseer Magrath as proposed.

JAILS OF BENGAL.

In 1855-56.

ON 25th November, 1856, Dr. F. Mouat, Inspector of Jails, reports that in March, 1856, the Jails in Assam, Arracan, and the S. W. Frontier were added to his charge, and that he hopes before the close of next year to have visited every Jail under his control. His chief object has been not to furnish crude theories, but to collect information. Dr. Mouat describes the plan of his report, and proceeds to state that on 30th April there were 18,788 male and 568 female prisoners in the Jails. This calculation however, for reasons given, is imperfect. The number of criminals to population is extremely small. In the Jails exclusive of the lock-ups, there is space for 21,165½ males and 1571 females at 24 superficial feet for each. The amount of 500 cubic-feet ordered by the Court of Directors is seldom available, and many Jails last year were overcrowded. In Rajshahye each prisoner had only 394 cubic-feet, and the mortality was 17.843 per cent. At Dacca it was 330 feet in the less crowded and 300 feet in the crowded wards. It is probable that at the full rate ordered by the Court there is not room for the prisoners. 3,222 males and 365 females were employed in manufactures, the most important being

	<i>Males.</i>	<i>Females.</i>
Brick making, ..	752	0
Pounding Soorkee, ...	154	50
Pottery, ...	73	0
Gunny weaving, ...	1558	16
Cloth, ...	759	23
Carpets, ..	373	0
Paper making, ...	1091	26
Basket making, ...	421	0

"The jails which are most distinguished for the quality and variety of their manufactures are Alipore, Patna, Hooghly, Monghyr, Jessore, Nuddea, and Sylhet." The gross receipts of the year from this source amounted to Rs. 2,00,143 and the net receipts to 90,859-2-1. The following shows the annual amount produced by each prisoner in the four best Jails :—

" Hooghly, ...	Rs. 53-13	3-3
Alipore, ...	27-0	2-2
Jessore, ...	26-6	2-5
Nuddea, ...	22-8	1-2"

6737 persons are employed on the roads, as jail servants and in miscellaneous occupations. The cost of the prisoners amounts to Rs. 8,14,938-12-2, or per head exclusive of establishments to Rs. 256-8-9 a year. Dr. Mouat notices some details in the increase of the average cost, and proceeds to say that the subject of reorganizing the guards is under the consideration of Government. The average of deaths, taking the above imperfect average of the jail population as the basis of the statement, has been 10·307 against 10·075 in 1854-55. As regards caste and classes this mortality showed itself thus :—

	<i>Average Number.</i>	<i>Deaths.</i>	<i>Mean Mor- tality.</i>
Hindu Prisoners, ..	11,743·55	1,352	11·513
Mussulman ,, ..	6,882·75	469	6·814
Other classes, ,, ..	962·92	198	20·562
			10·307

And as regards occupation thus :—

	<i>Average Strength.</i>	<i>Per-centage.</i>
Working on roads, ...	3,367·83	17·400
Engaged in manufactures, ..	6,076·17	10·253
Otherwise employed, ...	3,595·34	7·056
Inefficient from age and infirmities, ..	3,005·29	7·420
Total, ...	16,048·63	10·506

Women were less than half as liable to disease as men, and there is little difference between the mortality of prisoners, in their own districts, and in any other. The healthiest jail was that of Cachar, and next that of Nuddea. The least healthy was that of Bhaugulpore. It is Dr. Mouat's opinion, derived from statistics of the North Western Provinces spread over a very long period, that the great cause of death is disease of the digestive organs, that is, imperfect or unhealthy diet. The escapes have been numerous. During the year the Inspector has been armed with the powers of a Magistrate and the prohibition

of tobacco has been more rigidly enforced. The first Appendix contains a separate report on the condition of each prison visited by Dr. Mouat. The second contains the number of prisoners in every Jail, the third, the number of prisoners employed in manufactures, the fourth, the outturn of those manufactures, the fifth, an abstract of each prisoner's earnings, the sixth, a detail of his cost, the seventh, detailed statements of mortality, the eighth, the number of escapes. All the results are summarized in the body of the report. The ninth and tenth enter further into the question of mortality, and the eleventh describes the diet. The twelfth contains a correspondence on the suppression of tobacco. The result is that the great body of the Medical Service consider that no ill effects have resulted from the prohibition, and the few who hold it injurious, base their ideas on the assertion that smoking diminishes the influence of malaria.

JAILS OF THE N. W. PROVINCES.

In 1855.

ON 27th October, 1856, Mr. Fleetwood Williams reports that there has been an increase in the daily average of prisoners of Rs. 206, but the expenditure has decreased Rs. 43,887-0-11, though Rs. 10,005-2-2 have been granted to Magistrates in compensation for convict labour. Deducting this increased charge the decrease of expenditure is Rs. 53,892. Mr. Williams mentions some details of increase and decrease, and observes that the mortality amounted to 7.14 against 4.52 in 1854, but the increase was caused by an outburst of mortality in Benares and some other jails. At Benares the mortality was 24.59 per cent. from cholera and a very fatal kind of dysentery. The mortality was wholly among the out-gangs the season being unusually sickly. "In the Allahabad Jail the mortality, owing to cholera, was 11.88 per cent. At Mirzapoor it was 10.67. At Azimgurh 10.60. In both these Jails the same disease appeared which was so fatal at Benares."

The number of prisoners employed in manufactures is 3,422 against 2,824 in 1856. The net profits of their labour amount to Rs. 34,872-4-1; 2,384 prisoners are employed in the jails in lieu of hired servants. "The principal and most profitable manufactures in the Agra and Bareilly Central Prisons and Allahabad and Benares Jails, are paper making, blanket weaving, carpet making, manufacture of pottery, ditto of sut-

runjees, i. e. cotton carpets, woollen carpets and rugs. Tape of different sorts, towels, dusters, table-linen and shirting. The printing presses yield large returns, book-binding has been most profitably executed. The dyeing shop and basket manufactory pay well. The iron and brass turning lathe at Bareilly turns out very neat and good work and brings considerable profit." The number of escapes and recaptures has increased. "Attention has been paid to the education of the prisoners to the prescribed extent: 1,339 have been taught in Jail both to read and write, 302 to write, and 3,513 to read." Mr. Williams compares statistics with the Punjab and Bengal remarking that the average of prisoners in the North Western Provinces has been 22,366, and their average cost Rs. 30-9-5½. The cost is less than that of the Punjab by Rs. 0-15-1¼ and that of Bengal by Rs. 6-14-2½. He proceeds further in the comparison, which is usually favourable to the North Western Provinces, and estimates the net value of convict labour in the Provinces at Rs. 3,95,247-13-0. The Appendix contains the Tables from which the above results are summarized.

THE FORD WAH.

Bombay Records, No. XXXVI.

THE Ford Wah is the junction of the Western Narra branch with the Ghorra Canal in the Shikarpore Collectorate. On 15th November, 1854, the Deputy Collector of Larkana writes that the drain of water from the Ghorra is too great. It is therefore necessary to join it to the Narra. That river has too much water, and by the junction about 8,000 beegas of land now uncultivated will become culturable. The boat traffic between various points will also be accelerated four-fifths. On 24th November, 1854, Lieut. Col. H. B. Turner, Superintending Engineer in Sind, observes that the flood level of the two streams must be ascertained. On 2nd December, the Deputy Collector reports that the levels are favourable. On 12th January, Col. Turner again calls attention to the levels, and on 13th January, Mr. W. Hardy, Surveyor, thinks the Ghorra is the higher, and directs the work to be stopped. Major Stewart, Collector, in Upper Sind on 18th January replies that the zemindars are doing the work for themselves, they are spending Rs. 18,000 on it, and if they place confidence in their own notions of levels Government officials have no right to stop

them. On 20th February, 1855, the Deputy Collector of Larkanah reports that the Superintending Engineer has taken the levels and pronounced them favourable. The total cost will be Rs. 23,466. Of this amount they are bound to give Rs. 12,375 in labour for canal clearances. The rest is their own, and the Deputy Collector suggests that Government should pay half. On 17th April, 1855, the work is completed, and on 25th September, the Deputy Collector records his opinion that it will increase the revenue by Rs. 80,000. On 21st March, 1855, the Rs. 4,600 remaining to be sanctioned are sanctioned. The sagacity of Lieut. Ford, the Deputy Collector in commencing the work is highly commended. The Canal is $5\frac{1}{4}$ miles long, 10 feet in depth, 30 feet wide at bottom, and cost altogether Rs. 28,560.

THE GEOGRAPHY OF PEGU.

India Records, No. XX.

ON 26th June, 1856, Lieut. E. C. S. Williams, Superintendent of the Pegu Survey, reports on the Geography of Pegu. Pegu contains Pegu Proper, and the portion of Arracan, south of the Keintalee Khyoung. The total area is 32,250 square miles. It is bounded "on the North, by a line running East and West 6 miles north of Meaday, and along which pillars have been erected at intervals. On the West, by the Arracan Mountains, and below the Keintalee Khyoung, by the Bay of Bengal, which latter also forms the *Southern* boundary. On the East, by the Sittoung River, as far North as the Youkthwa Khyoung, one of its affluents from the East, in Lat. $18^{\circ} 33'$ N., and above that the boundary is as yet undetermined ; all its parts lie within the tropics and are embraced between the parallels of N. Lat. $15^{\circ} 44'$ and $19^{\circ} 27'$ and the meridians of E. Long. $94^{\circ} 13'$ and $96^{\circ} 52'.$ " The fiscal divisions of the Province are :—

Sq. Miles.

Rangoon, ...	9,800
Bassein, ...	8,900
Prome, ...	5,500
Henzada, ...	2,200
Tharawaddy, ...	1,950
Toungthoo, ...	3,900

The frontier line is 140 miles long and has two mountain chains for its extremities, the Arracan Mountains on the West,

and the mountains beyond the Sitang on the East. The Yoma Range midway between these two is of brown or grey slate-clay; with layers of bituminous lime-stone. Overlying these is a bed of laterite covered with trees or bamboos. The Arracan Range abounds in lime-stone, and has some free-stone to the South. In Henzada, granite, green-stone and horn-blende are to be met with, and granite is found in Prome, while there are small patches of coal near Thyatmyo.

The Yoma Range is the backbone of Pegu, running within the Province 5° E. of S. Its maximum elevation is about 2000 feet, but the slopes are steep and difficult. The whole is densely wooded, and three passes have been explored in the Northern part. "Of the mountains east of the Sittoung River, little is known. The main water-shed is said to attain a height of 7 or 8,000 feet, and to be a considerable distance beyond the Koonoung Range, which runs parallel to the river at a distance of 14 or 15 miles, until turned by the Youkthwa Khyoung. It divides the valleys of the Sittoung and Salween and extends on the South to Martaban. For 60 miles south of the Frontier on the East of the Irrawaddy, and for 90 miles on its West", the valley has a rugged appearance, and cultivation can only be carried on in patches. Below these limits the hills subside into alluvial plains, until the valley is lost in the Delta. Its breadth is about 80 miles equally divided by the river. The valley of the Hleing is identical with that of the Irrawaddy. The Puzendoung and Pegu Valleys are alike, and 20 miles north of Rangoon they unite with the valley of the Sittoung, and are lost in the alluvial plain. The breadth of the Puzendoung valley is from 10 to 15 and of the Pegu valley 15 to 20 miles. "In the Valley of the Sittoung, the country to the west of the River, and near the Frontier, resembles the North-eastern portion of the Irrawaddy Valley." The Valley has large plains, but the sea of hills on the West is all but impenetrable, and the Valley is very thinly inhabited.

The plains are either densely wooded or covered with cane and tall grass. Sometimes they undulate, but usually stretch into a boundless expanse of light coloured soil. These plains furnish the wealth of Pegu. "From the Gulf of Martaban, on the East, to Barague Point, the most Southern extremity of the Province, the direction of the Coast is South-west. Thence to Pagoda Point, about 5° N. of W. being the boundary of the Delta of the Irrawaddy, it is necessarily low, flat, and difficult to make. The Gulf of Martaban is unnavigable on account of its numerous sand-banks, many of which are dry at low tide, and the whole Coast is unapproachable, within 9 or 10 miles, by ves-

sels of large size, from the same reason, except in a few places, where channels are kept open by the streams of the rivers." At the Bassein River the Coast runs N. by E. Along this Coast spurs of the Arracan Range shoot into the Sea surrounded by dangerous rocks. Between them lie pleasant sandy bays. Most of the rivers are very wide-mouthed, but the coast is very dangerous.

The great tidal wave of the Indian Ocean strikes the coast between Pagoda and Barague Points, and then runs at 4 miles an hour towards the Gulf of Martaban. The speed then increases, and on meeting the Sittoung it sweeps up that river in a bore 9 feet in height and of extreme fury. No steamers can ascend the Sittoung. This river runs about 350 miles, and drains some 22,000 square miles.

The Pegu and Puzendoung Rivers rise close to each other in the Yoma Range. The Pegu runs S. S. E. for 50 miles to Pegu, where it is 105 yards broad, and then 60 miles to Rangoon. The mouth of the river is very wide, but it contracts very rapidly and there is consequently a small bore.

The Puzendoung runs usually S. by E. It is discharged into the Pegu river near its mouth. The Hleing rises near the Promé Hills, and falls into the Rangoon River at Kemen-dine. It is connected with the Irrawaddy at Hteindanuby, a stream as large as itself. It is navigable in the dry season to Tsan-yuay having a breadth of 180 yards, a tidal rise of $2\frac{1}{2}$ feet, and 4 feet of water.

The Irrawaddy rises in Lat. 28° N. and Long. $97^{\circ} 30'$ E. It has a course of about 900 miles, of which 240 are in the Province. Pegu is drained chiefly by it and its tributaries. The waters rise in March, and attain a height of 40 feet above the lowest level. In October, the river subsides sometimes a foot and a half a day. In the northern part the river is clear in the cold season. No rocks exist in the bed below Myoung. Above this the bed is irregular, broken, and full of rocks. Sand-banks and islands are numerous, but are submerged when the river is at its highest. The velocity of the stream ranges between $1\frac{1}{2}$ and 5 miles an hour. Its width at the frontier is $\frac{3}{4}$ of a mile. Steamers drawing 6 feet can reach Ava in the rains. The tide is felt as far as Henzada. At the embouchure of the Bassein river there is a sand-bank 10 or 15 feet high, so that no water enters till the river in its annual rise has topped this bank. It receives the drainage of the Arracan Range. It is navigable for ships as far as Bassein, but in the rains steamers drawing 10 feet can pass through it to the Irrawaddy. The Irrawaddy has nine principal mouths, and the branches are

connected by innumerable creeks. The Rangoon is the most frequented, and the Bassein mouth the deepest and most distant. The other mouths, the China-Bukeer river excepted, are never attempted. The banks of all except the Bassein are muddy and full of alligators. The soil of the Delta is extremely rich, but covered with grass and forest. There are four lakes or lagoons, the water in which is good. The only mineral springs are saline. The climate is good, the nights being seldom sultry, and there is always a breeze. The rains last from 20th May to the middle of October. The fall is greatest near the coast, but is much lighter in the N. W. of the Province. The Province is generally visited by one severe storm a year after the vernal equinox.

Lieut. Williams describes the zoology of the Province. It has monkeys, elephants, bears, jackals, tigers, leopards, oxen, buffaloes and most of the smaller animals in the tropics. Sheep have been introduced and thriven well in the North. The birds are like those of Bengal. Tortoises, turtles, alligators, cobras, vipers and frogs are found everywhere. The waters teem with fish. The jungles abound with trees, of which teak, iron-wood, ebony, jack, wood-oil tree, acacia catechu, gum kino, and cocoanut, are the most valuable. The Province yields "strichnon" senna, castor and croton oil. Rice, maize, cucumbers, pumpkins, brinjals, radishes, sweet potatoes, capsciums, tomatoes, onions, garlic all flourish. The principal fruits are plantains, mangos, tamarinds, jacks, pines, oranges, limes, cocoanuts, melons, bread-fruit, cashewnuts, figs, custard apples, and indigo, safflower, neepasee, arnotto, cotton, mulberries, tobacco, paun, betel, teel, mustard, and sesamum are all cultivated.

The people, a sub-variety of the Malay race average 5-4½ inches in weight 8 stone 2 lbs. inches in weight, and are 32-5 inches round the chest. Lieut. Williams proceeds to describe the ordinary qualities of Burmese, and remarks that the most dense population dwell round Rangoon, in the Henzada District, in the upper portion of Bassein, and about Poundingday. The races are located :—

Races and their Localities.

Burmese, ...	The bulk of Inhabitants.	{ Generally distributed. In the Delta, principally in the South and East. Ditto ditto in Towns.
Talaings or Moans or Peguans, ...		
Pwo, Sho, or Talaing Karens, ...		
Sgau or Burmese Ka- rens, ...		{ Ditto and sparsely towards the North, living apart and often in the wildest spots.

Karen-nec, or Red Karens, In the Hills, East of Tounghoo.
Khyins, ... In the wildest parts of the Arracan Mountains. The faces of the women are tattooed.
Yeh-baings,... .. In the secluded parts of the Yoma Range. They cultivate the mulberry for silk.
Shans, ... In distinct communities, here and there.

THE PEGU SURVEY DEPARTMENT.

India Records, No. XX.

ON 20th June, 1856, Lieut. E. C. S. Williams reports on the Survey Department. The Topographical Survey was commenced in December, 1853, but the department was found inadequate and in 1854 was increased. Native Surveyors were made out of Karen lads from the Missionary school at Kemmendine. Lieut. Williams recounts various charges among his officers and observes "up to the 30th April, 1856, about 14,000 square miles of the most populous parts of the Province have been surveyed, at an expense of about 96,000 Rupees, or very nearly Rupees 7 per mile. Judging from the results of Surveys executed in India, the Superintendent was at the outset, under the impression that the Province might be mapped at the rate of Rupees 5 per mile. The Survey ought to be completed in two more seasons, i. e. by the close of 1858."

REPORT ON THE TOUNGHOO DISTRICT OF THE SURVEY.

India Records, No. XX.

ON 8th May, 1856, Captain R. Stewart reports on this district. "The North-eastern or Tounghoo District of the Pegu Survey is situated between the parallels of Latitude of the Frontier and Pegu. The Yomah Range of Hills, forming the Western boundary, and the limit of the Provinces of Pegu and Martaban the Eastern. The average length and breadth are about 145 and 50 miles, and the approximate area about 7,250 square miles." The Sittoung runs nearly N. and S. to the East of the centre down the district. "For an average of 15 or 20 miles the country to the West of the Sittoung River is almost a dead flat; small hills then appear, which continue increasing in height till

they join with the Yomah Range." From thence to the Yomah Range the country is impracticable, has few footpaths, few villages, and those small. East of the Sittoung the country is rugged, some of the hills rising to 7,000 feet. Nothing is known of this part of the country. The whole of the Tounghoo district is covered with jungle, either of cane or wood, and bamboos. In the South the soil is clayey changing towards the North into laterite. To the West of the Sittoung there are no stones or rocks "excepting on that ocean of small hills already described. There, there is some slate, some sand-stone, and large blocks of rocks." To the East of the Sittoung large masses of lime-stone are found. To the west of the Sittoung are seven large creeks, and a few to the East, but the latter have not been examined. There are no roads. There was once a brick road from Tounghoo to Pegu, but it is obliterated. Troops can march between these two points via Shwaygeen. The population is very small, about 4,053 of both sexes. For the rest the district is like all other parts of Pegu wanting only population.

JOURNAL OF A TOUR FROM TOUNGHOO TO THE SALWEEN.

India Records, No. XX.

MR. E. O'Riley, Assistant Commissioner, left Tounghoo on January 16th, 1855, by boat. By the 19th he reached Moo Ban where the country is covered with betel-nut plantations. They are grown on the hill sides. The trees are good, but too close. The nuts are exported to the North, and with a better method of planting these might supply the Rangoon market. The Karens too cut down a portion of the trees when a Chief dies, that he may not lack nuts in another world. On January 21st, Mr. O'Riley had reached Yai Boo and proceeded to examine the hot springs. It was found impossible to reach the larger springs, but "those accessible from the halting place, bubble up from beneath the large granite boulders through a sand of quartz crystals deposited by the disintegration of the granite, the water having a temperature of 129° possessing no smell and leaving no deposit similar to those of a calcarious nature, nor does the taste exhibit any chalybeate property." It is Mr. O'Riley's opinion that the water becomes hot from mechanical causes, not from any chemical combination. Two springs seen next day were 138° and 135° Fahr. respectively. On January 23rd, Mr. O'Riley examined the country near Swaiceenig Tsakan for gold. A few spangles of gold were obtained, but a deeper

shaft was required, which he had not the means of sinking. Mr. O'Riley proceeds to describe the hills, remarking on the wide spread cultivation of the Karens. He mentions also the incident of his being visited by a Karen Chief and his tribe, all very drunk, and disposed to be turbulent. Next day two children stolen were given up, the Chief promised to abandon child stealing, and asked for a Karen Teacher. The route all along was most difficult, the elephants in one place refusing to move till their loads were taken off. On 31st January, on the Mookyee Khyoung, the Karens objected to Mr. O'Riley proceeding further, the real reason of the opposition being a blood feud between two tribes. The Karens of the space between this halting place and Nat-Toung were jealous of his approach, fearing they should be seized and sold into slavery. They however were disabused of this idea, and promised assistance. They refused it, however, and aid was at last brought in from the villages previously passed through. The Karens of the place are wretchedly debased, but cut down trees thus. "After the morning's meal, the whole of the men and youths proceed to the place of clearing and, taking a line from the base of the hill, commence operations by making only a slight incision into the wood of the largest trees, the smaller ones being left untouched, ascending higher up the trees of largest growth receive a deeper incision on the side of the ascent, and so on in proportion as they reach the highest point for the day's work, and when the line has been completed the trees at the top, which are selected for their height and fulness of head, are severed through falling upon those below; an impetus is created which increases as it moves steadily down the hill side, and with one lengthened crash prostrates the whole of the forest vegetation; the noise of the falling trees, accompanied by the shrieks and yells of the operators, forms a combination of sounds truly demoniacal." They also make suspension bridges of bamboo of 60 and 80 feet span. The people never wash themselves, but bear cold wonderfully. On February 9th, Mr. O'Riley after pushing through the pine forest for some days begun the ascent of the 'Nat-Toung,' and by noon reached an altitude of 7,800 feet. "From this point the whole of the mountain systems were traceable so far as the haze would admit of their outlines being followed, those in the far distance to the Westward, forming the Valley of the Pung-Loung of the lowest height ranging from 2,000 to 3,500 feet; more Easterly the higher ranges passed on the line of route, with their tops covered with pine forests having an altitude of 4 to 6,000 feet, with a bold outline and exceedingly steep flanks; and high above all the range upon

which I stood, some portions more to the Northward being fully 500 feet higher than the summit of the 'Nat-Toung,' or probably 8,500 feet." A range was visible to the Eastward some 10, or 12,000 feet high. Mr. O'Riley resolved to return, fearing to embroil himself with the Karen-nee Chiefs. Mr. O'Riley records the particulars of his return journey, of no interest except the fact that many of the trees on his road were true "gamboge."

MAJOR JACOB *VERSUS* PUNJAB ADMINISTRATION.

India Records, No. XX.

On 28th May, 1855, Mr. Frere, Commissioner in Sind, forwards a letter of Major Jacob to the Supreme Government; and observes that the peculiarities of Major Jacob's frontier management are that his men never wait to be attacked, that marauders are checked whatever the odds, and that no private person is permitted to plunder or kill even an enemy. The plea of blood feud in such cases is considered an aggravation, as proving malice aforethought. Such is Major Jacob's influence over the frontier tribes that rapine, once an honorable occupation is now looked on as disreputable, and the troops look down on the marauders as malefactors rather than enemies, and the plunderers in their turn are afraid to meet the troops. In short to quote Major Jacob's own words "the essence of the whole business is first to put down all violence with a strong hand; then your force being known, felt, and respected, endeavour to excite men's better natures, till all men seeing that your subject is good and of the greatest general benefit to the community, join heart and hand to aid in putting down or preventing violence." This, proceeds Major Jacob, was done, and the tribes submitted. Their character has been changed. Twenty thousand souls have taken to peaceable pursuits, and the men of the Sind Irregular Horse are looked on as friends all over the country side.

In the letter enclosed from Major Jacob he complains that at page 40, para. 133 of the Punjab Report, it is said, "the Sind Horse 1,400 strong (of which each man receives 30 Rupees per mensem) guard a Frontier only 70 miles long, and that distant generally 30 miles from the hills. The Eusufzye Frontier, from Toongyee on the Swat River down to Pehoor on the Indus, is of the same length as the Sind Line from Kusmore to Khangur, and yet the former is patrolled and defended by the Guide Corps, 800 strong, including both Cavalry and Infantry. In neither case are the supports taken into considera-

tion. Our Derajat Line is supported by the Cavalry of Dera Ismail Khan, Asnee, Dera Gazee Khan, and Bunnoo, and the Sind Line by those of Sukkur and Shikarpoor." The Sind frontier is 185 miles long and the Sind Horse is the only body which since 1847 has been on the frontier. Major Jacob calculates that in Sind there are 2 men to the mile as guards while there are 4 men per mile in the Derajat. The nearness to the hills of the Punjab men is an advantage, as the cavalry have no distance to go. No man on the Sind border is allowed to carry arms, and thousands have become quiet cultivators. "The paragraph quoted above from the Punjab Report being founded on imperfect information, is then evidently incorrect as to fact, and unjust as to conclusion; and I beg respectfully to claim, as I think that I have a right to do, the protection of the head of the Province in which we have so long served, from these injurious remarks made and published, regarding our proceedings, by the Board of Administration of the Punjab, who have evidently been misinformed as to the state of things and to whom we are not responsible." This letter was transmitted to the Chief Commissioner of the Punjab who on 8th October, 1855, replies that the remarks complained of were written from notes compiled by Sir Henry Lawrence. He is sure that the Board had no intention of misrepresenting Major Jacob. "The Chief Commissioner has no personal knowledge himself of the exact circumstances of the Sind border. He has always understood, however, that there existed a wide extent of desert between the cultivated and inhabited portions of Sind, which Major Jacob's Force guarded, and the hills from which the robber tribes issued to plunder." That would be an advantage, as Cavalry could get between them and the hills. The Board did not state as Major Jacob seems to think "that 400 Cavalry and 800 Infantry guarded the 300 miles of the Southern Derajat, but that 800 men in all guarded the 300 miles of the Southern Derajat." The Chief Commissioner cannot think the proximity of the hills an advantage, as the villages are liable to be plundered, before the troops can be collected to afford aid. The tribes in the broken ground at the foot of the hills are very formidable. The Chief Commissioner "cannot believe that small Detachments of Cavalry, however excellent, could hold open posts close under the hills with impunity. It is not merely the Chief Commissioner's opinion, but it is that of some of the best Officers of Her Majesty's and the Hon'ble Company's Service, that the Guide Corps and Punjab Infantry are not to be surpassed by any Native Troops in India. But even a small Detachment of these men could not safely be posted in the open plain in the vicinity of the hills."

FLAX IN THE PUNJAB.

India Records, No. XX.

On 23rd September, the Secretary to the Chief Commissioner for the Punjab submits certain proceedings with respect to the cultivation of flax and rearing of silk-worms in the Punjab. With regard to flax the Committee desire to rent 30 or 40 beegahs of ground at Rs. 20 per beegah, on account of Government. They feel confident that the profit will not be less than Rs. 2,000, and the Chief Commissioner therefore requests sanction for the expenditure. As regards silk the Committee recommend the offer of graduated rewards such as were given for tea in Kangra. The prizes proposed are Rs. 250 for the largest quantity of dried merchantable cocoons, Rs. 200 for a quantity not less than 75 seers, and Rs. 150 for any quantity not less than 50 seers. Moreover Rs. 250 worth of eggs should be forwarded from Moorshedabad. For the cultivation of the mulberry the Society recommend a prize of Rs. 500 for the largest piece of land devoted to it not being less than 100 beegahs, Rs. 350 for the next largest not being less than 75 beegahs, and 200 for the third largest not being less than 50 beegahs. Moreover they advise the appropriation of some beegahs of land near the Gardens to the cultivation, all which recommendations are favourably submitted by the Chief Commissioner. The Memorandum from the Society follows, detailing the recommendations summarized above. On 13th October the Government sanctions all these proposals except the renting of 100 beegahs of land for the cultivation of the mulberry. In reply on 30th January the Chief Commissioner assents to the propriety of abandoning the mulberry portion of the scheme, states that the expenditure on silk has already been Rs. 16,867, and observes that the returns will not cover the expenditure. The Chief Commissioner recommends that the experiment should be carried on for two years more at a cost not exceeding Rs. 17,000. There were signs of progress. On 27th February Government sanctions Rs. 11,588 in addition to the sum previously sanctioned, upon the distinct understanding that no further assistance will be granted. On 16th July the Secretary to the Chief Commissioner again reports that during 1855 the experiment was vigorously prosecuted. It was then decided to proceed with Cashmere worms, but they died as readily as those of Bengal. The silk experiment has therefore failed in toto, after an expense of Rs. 10,569-9-8. The value of the silk produced was only Rs. 1100. "The conclusion, therefore, I am to state, appears to be that the climate in this part of the Punjab is ini-

mical to the production of raw silk." The Northern parts of the Punjab have a different climate, but the Government has not the means of trying the experiments there.

On 12th February, 1856, Mr. D. F. McLeod, Member of the Council of the Agri-Horticultural Society submits his views on the silk experiments. The Bengal worm has failed. He thinks the Cashmere insect on the other hand, which is identical with that of the South of Europe, has not had a fair trial. He therefore considers it expedient that the experiments should be continued. For it is found "that all the operations of the season can be closed by the end of April, and last but for two or three months in all. The silk produced from this worm in its present state, and as at present reared and fed, is greatly preferred by the Native consumer to the Bengal or other kinds, being much stouter and stronger." That the insect thrives admirably on the indigenous mulberry, that the insect is much more hardy than that of Bengal, that its yield is larger than that of the Bengal worm, and that the worms hatching from the eggs of last year are so strong and vigorous, as to shew that there is no progressive deterioration. Therefore Mr. McLeod is of opinion that the experiments should be persevered in. Major J. M. Drake thinks the Bengal worm a failure, but that the Cashmere worm should have a further trial. Major Burnett sees little prospect of success, but would continue the experiments. Mr. Temple thinks the Bengal worm a failure, and has no hope from that of Cashmere. The Society generally resolve on 16th May, 1856 that the experiment was a decided failure. On 31st May the Secretary to the Society recapitulates the facts.

20 seers of eggs were collected in Cashmere, 7 seers more were forwarded by the Maharajah, and Rs. 25 worth were sent up from Moorshedabad. For the first three weeks the worms looked promising, then the supply of food fell off, and then the hot winds commencing the leaves arrived in a very unhealthy state. The earlier cocoons were fine, but soon after they fell off. "Ten maunds of cocoons have been produced which have yielded 79½ lbs. of clean silk. About 40 lbs. of cocoons have been disposed of in supplying eggs for next year, of which there are available, for distribution, about ¾ seer." The months of April and May are in fact at Lahore too dry. The total expenditure on the experiment as before stated was Rs. 10,569-9-8.

WET AND DRY DOCKS.

Bombay Records, No. XXXIII.

On 31st October, 1854, Col. C. Waddington, Chief Engineer, submits a plan for the distribution of the space to be recovered

from the Sea at Moody Bay. A project for the construction of Wet Docks by a company of merchants had been submitted to Government by Mr. Heycock. It was thought very desirable "to combine this project with the arrangements for the Custom-house at Boree Bunder, so long as the present fortifications of Bombay shall be retained, and no building of durable construction could be permitted on the Esplanade of Fort George, and so close to it."

The scheme was to construct Docks between Boree Bunder and the Carnac Bunder or half a mile from the new Custom-house. Col. Waddington objects to the removal of the Custom-house to Boree Bunder. There are other objections, and weighing every reason for and against Col. Waddington submits a plan for two Wet Docks at Moody Bay each capable of accommodating from eleven to thirteen vessels of moderate size. The ground allotted for the Railway will thus be diminished by 40 feet, but to this there will be no objection. A plan is given, as is also that of Mr. Heycock. On 17th March, 1855, the Government resolve that Mr. Heycock's proposition and the Chief Engineer's letter be submitted to a Committee. The Committee consisted of the Chief Engineer, Mr. Heycock, Commander Daniell, R. Strong, Esq., R. Spooner, Esq., Acting Commander of Customs, J. J. Berkley, Esq., and Major Estridge, Executive Engineer named by Government, and two gentlemen named by the Chamber of Commerce. On 25th April, 1855, the Committee through their President, Major General Waddington requests Government to furnish an Engineer to examine the sites at Boree Bunder, Moody Bay, and the space between Bummalow Island and the Apollo Pier. Subsequently Lieut. Selby of the I. N. is named as an officer well qualified for the task, and on 5th May Lieut. Selby is directed to commence the work. The Committee was slightly changed, and on 10th October, Major General Waddington reports the final resolution of the Committee. That resolution is that the "advantages which the site proposed by Mr. Heycock presents are overbalanced by the probable difficulties and expense of construction on that site." That the site at Moody Bay is not large enough, and the works would be expensive; that the site between Apollo Bunder and Arthur Bunder appears the best. "It has the paramount advantage of ample space, is easy of access by sea, possesses commercial conveniences little inferior to those of the Moody Bay site, and, with reference to the accommodation to be obtained, may probably be built on at a lower cost." The proceedings of the Committee follow, but the result has been summarized above, and the only new fact is the following estimate:—

	Mr. Gerrard's Corrected Estimate. Estimate.	
Docks between the Carnac and Boree		
Bunders (Mr. Heycock's site,).... Rs.	11,01,149	17,79,925
Docks at Moody Bay, ... „	7,86,615	12,71,504
Docks between Apollo and Arthur „		
Bunders, ... „	9,68,079	15,64,826
Docks south of Arthur Bunder, ... „	8,80,954	14,23,996

On 19th October, the Governor records in a minute his opinion that Mr. Heycock's plan was in some respects the best, and that it was only the proposal to construct the Docks by a Joint Stock Company which prevented Government constructing them itself. Mr. Lumsden on 23rd October records his opinion, that no site should be arbitrarily fixed by Government. As a matter of individual opinion he thinks the Docks between the Apollo and Boree Bunders would as respects depth of water and saving of expense be most eligibly situated; but he considers the commercial advantages of Mr. Heycock's plan so great, that had not Mr. Heycock given it up in deference to Capt. Selby's Chart he would inform Mr. Heycock that Government would support his plan. Mr. Lumsden annexes a Memorandum from Mr. Heycock which he thinks valuable. In this Memorandum Mr. Heycock observes that a Company would require from Government, 1st, a grant of a site; 2nd, an Act empowering the Company to levy Dock dues. The site at Boree Bunder is between the Fort and Town, the position is well sheltered; "3rd, the entrance to the docks would be in the direction of the ebb and flow of the tides, and is not obstructed with rocks; 4th, the docks would furnish more space than the trade at present requires; 5th, the railway runs close by the intended docks; 6th, by a removal of the soldiers' lines, and keeping the railway off the shore, as at present, extensive accommodation for ground-floor godowns or sheds, besides those along the quays surrounding the docks, can be erected, sufficient to store a very large portion of the goods brought to Bombay." To obtain these results the railway terminus should either remain where it is, or be continued to the back of the Mint. "It is not necessary that the Custom-house should be close to the docks, but rather that it should be near to the offices of the merchants, and, at the same time, in the direction of the docks, so that a communication is easily kept up with the docks, and with the offices where nearly all the entries are filled up." The site at Moody Bay is too confined.

On 24th October, Mr. A. Malet records his opinion that if the Railway terminus is removed from Moody Bay there will be room for wet docks there. "It seems to me that by this plan

all the necessities for wet docks will be provided ; the Railway terminus will be in a better situation than at present contemplated ; and for the public, ample access to the harbour between the two premises will be maintained." He also suggests that Government might undertake the works itself.

On October 29th, the Governor records in a further minute his opinion that making the use of the Wet Docks compulsory would be ridiculous. The time of large ships is valuable. It will be economized by using the docks. Therefore the docks will be used. He cannot agree that the choice of site is to be left to the Company. As Government gives the site it has a right to a voice in the matter. The reasons which induce him to prefer Boree Bunder or Moody Bay are that neither would interfere with the Esplanade, the only space left open for recreation and exercise, nor would either render it necessary to carry the Railway through populous thoroughfares on the same level. On 5th November, Mr. Lumsden considers Mr. Malet's plan, if practicable, very good, but still thinks if a Commercial Company is to execute the work, it is not for Government to interfere in the selection of a site. Moreover he fears that no Commercial Company will undertake the work, unless the use of the docks is made compulsory, to which he entertains a decided objection. On 13th November, the Government informs the Committee, that it may be possible by removing the Railway terminus to the space between the Carnac and Boree Bunders to construct the docks at Moody Bay. The opinion of the Committee is requested on that point. As to the space between the Apollo and Arthur Bunders it must be noticed that "should it be necessary to connect the docks by a tram or railroad with the Railway terminus, and the commercial town, not only would some of the principal thoroughfares in Bombay be intersected, but the Esplanade, which is now almost the only space left for recreation and exercise in this populous island, would be seriously interfered with." The Committee on 3rd December reject the Government proposal as the removal of the terminus is objectionable. It would be further from the fort and Colaba ; it would be difficult of access ; it would not be in contact with the wet docks. As to the danger from the Railway passing over the Esplanade that may be obviated. Mr. Heycock and Mr. Kerr dissent. On 13th December the Acting Collector of Customs, Mr. Spooner in reply to a question from Government states that the expense of loading and unloading by boats is 4 annas per ton in the fair season, and 6 to 7 annas in the monsoon. A contractor "would undertake to bring goods all the year round from a dock, situated about where the Custom-house now is, to his office, for 6½ annas per ton less than from a ship in the har-

bour to the Custom-house, and thence to his office." The length of time required to unload a ship of 500 tons is from twenty to twenty-five days. One-half the time would be saved. It is impossible to form an opinion as to the return to be expected from the docks, but the extreme of benefit to be derived would be Rs. 1,11,580 per annum. The tax on trade therefore should not be greater than that.

On 20th December, Mr. Lumsden records his opinion that the site between the Apollo and Arthur Bunders is the best. Moody Bay will scarcely hold the Railway terminus, and the expense of excavation will be great. There is "one most important advantage in working between the Apollo and Arthur Bunders, that is possessed by no other site, and for which no other advantages which other sites may possess can in my opinion compensate,—I mean a natural basin of deep water, and a natural reef or ramp of rock outside of it, admirably suited for forming the base, and supporting the foundations of quays and piers to seaward."

On 27th December, Mr. A. Malet is unable to acquiesce in this opinion. The objection to Moody Bay is its smallness. It is only about five acres smaller than the space between Apollo and Arthur Bunders. The space for the terminus from Carnac Bunder to the beginning of the Docks would be fifty acres. On 2nd January, the Governor adheres to Moody Bay as the best site. The objections of the Committee refer only to the site for the terminus. The greater distance of the terminus from the Fort, alleged by the Committee as an objection, seems of little weight. As to the terminus not touching the docks it can be made to touch them. As to the space required no site affords so much space as that between Carnac and Boree Bunders. On 18th January, 1856, Mr. Lumsden again observes that to make the curve necessary to lead the Rail to Carnac Bunder the bunder must be cut through, at an enormous expense. He objects also to the site because, "if you take more ground from the harbour in that neighbourhood, you destroy the main access to Carnac Bunder. The ground required for a railway terminus should be an oblong; as as I am informed breadth, without length of area, is of little use here. A terminus so placed would be at once the most difficult, expensive, and dangerous to work." He adheres to his opinion that wherever the terminus is placed, the site for Docks is between Apollo and Arthur Bunders. The Government on 18th February ordered a plan to be prepared which was done. On 23rd May, 1856, the Government decide that Moody Bay is the preferable site for Custom-house, warehouse and Docks, and the spaces south of Carnac Bunder for the Railway terminus. The Go-

vernment announce that if no Company is formed, it will propose to do the work itself.

THE MINERAL DEPOSITS OF KUMAON.

India Records, No. XVII.

ON 26th December, 1855, the Government of the North West Provinces transmits Mr. Sowerby's report on the Survey of the Iron deposits in the Bhabur. The mines of Nutowa Khan Agur yield micaceous specular iron ore, very rich. The mines have the advantage of the Ramghur stream which never dries. The surrounding hills are covered with oak. The mines at Oojoulée, near the Loha Kot produce a rich red ore of specular appearance. The beds are 3,000 feet above the Kossilla river, and the ore could be brought down a mountain stream half way down the hill. "The iron ore near the Khyrna Bridge is a rich red hæmatite, like the ores in Cumberland and Lancashire." The deposit is very considerable and timber plentiful. The Agur and Bhabur mines might be connected by a pass behind Chenur. In Dechouree a bed in situ exposed to a thickness of about 20 feet has been found. The works at Dechouree are proceeding. Mr. Sowerby has selected sites for an experimental furnace on the Boer river, but water must be artificially raised. There is ore at Bhuggur, near Derealkara, and at Bhoonka. A bed has been discovered between Loha Bhur Bhur and Bhoonka. It is a rich brown ore of a metallic appearance when fractured. "A bed of clay iron ore has been discovered at Beejapoor, near Huldwanee, of 30 feet in thickness. There are indications of the bed being continuous longitudinally." There is lime-stone within 3 miles, a stream 2 miles off, and abundant fuel. The ore is of good quality. At Chownzilla Mr. Sowerby found small rolled blocks of iron-stone, white clay and a seam of coal. Mines are being dug to ascertain the character of the ore near Umraihee. Iron-stone is found in block near Ghora Kot. The ore is a red and brown clay iron ore. There is lime-stone and fuel near.

Mr. Sowerby has examined the plumbago deposits near Almorah. This ground should be more thoroughly explored. The openings as yet made are superficial.

The report summarized above follows, but contains no new facts except the following account of the Khyrna bridge. "I next visited a deposit of iron ore near the Khyrna Bridge: this is at the confluence of the Ramghur and Kossilla Rivers. The ore is

a rich red hæmatite, precisely similar to the same ores found in Cumberland and Lancashire : it is not found in regular beds, but large caverns. The ore has been worked slightly by the native miners, as seen in several irregular openings made by them close to the bridge. The enclosing rock is clayey-slate, exceedingly hard and compact ; the ore is seen in several places in a high scar facing the river ; and from the extent to which it is seen, I have no doubt whatever, but that the deposit is very considerable, and there is a good ' back' (hill) to work upon. This mine has been the subject of notoriety from the circumstance that the materials for the iron bridge were brought from England, and one end of it is built into a rich mine of iron. Timber is abundant in the neighbourhood of the mines, and the Kossilla River will supply water to any required extent, being a very large stream."

On 17th December Mr. Sowerby reports that " the District from Munsainee to the banks of the Kossilla has been again gone over, and the result is a most complete proof of the existence of an immense abundance of iron-stone." The Ojkulkee Doong Hills are on their Southern slopes literally full of iron-stone. Lime-stone has also been found. In the Dungar Nuddes there is a bed of ore like that of Beejapore, and there is lime-stone in the neighbourhood. A bed of iron-stone is seen on the Ramgunga about 2 feet 6 inches in thickness. It is not rich. 300 yards from Ghurar on the banks of the Ramgunga is a poor yellow Hyderabad iron-stone of some thickness, while a mile below the village a bed of very rich brown iron ore has been discovered. " It is seen in large blocks on the hill-side for a distance measured down the slope of the Hill of 50 yards, and of considerable width, and the bed *in situ* is clearly seen, sticking up out of the surfaces."

On 30th January, 1856, Mr. Sowerby reports the general result of " the preliminary survey of the iron deposits in the lower hills of Kumaon and Gurhwal from the Golah River to the Ganges. The survey commenced at Beejapoor, about 2 miles to the East of the Golah River, where an excavation was made into the bed of iron ore, which exposed it to a thickness of about 50 feet, the ore being a red clay iron ore rather friable, and slightly metallic in appearance when fractured." Lime-stone is obtainable within a short distance. At several places near Chownsilla—narrow beds of inferior silicious looking ore were found. There are beds of rich brown iron-stone between Loha Bhur Bhur and Dechouree. Many of the masses are several tons in weight. " A shaft has been sunk at Dechouree in the broad open ravine to a depth of about 18 feet. The first 12 feet below the surface is a very com-

pact and rich bed of iron-stone; afterwards the bed becomes like that at Beejapoor, with flakes of white clay interspersed, and the white clay becomes more frequent, and the ore poorer as the shaft continues downward." Ore is found also very high up the Hill. Mr. Sowerby continues to notice different localities where iron-stone is found and proceeds. "At Lahee Buleon there was found large masses of highly ferruginous quartz, with bits of rich iron-stone, sometimes of a bright red colour, resembling cinnabar, for which mineral it might easily be mistaken. The quantity obtainable is very considerable, but it would be found refractory in the blast furnace." The Oskulkee Doong Hills are very rich in iron-stone, and the ore though not rich is a good workable ore. "On the East side of the Ramgunga, and near a Ford in the river, 2 miles below Ghurrai there is a bed of rich reddish brown iron-stone, similar to that of Loha Bhur Bhur. Large blocks are visible on the hill-side, nearly down to the water's edge, over a distance of about 200 feet, and the bed *in situ* is seen sticking up at the surface." Lime-stone is obtainable near Simulkurree, on the new road from the Ramgunga to Simulkurree the brown iron-stone is seen, and about two miles further on there is a bed of compact brown iron-stone. In fact throughout this road to Kotree on the Sona Nuddee blocks of iron-stone are seen. The Hills around Kotree are full of iron-stone. So are the Hills west of the Sona Nuddee. Iron-stone is seen round Kotdwara, Lol Dak, the hills round the Mittewallee Nuddee, near Mundil and on a small stream which empties itself into the Gaages a little above Ghorree Ghat. "In a dry ravine running up the hill-side, on the Northern bank of the stream, masses of very heavy rich red iron-stone were found for a distance of about 300 feet measured up the Hill slope. One mass amongst many was found, weighing about 200 lbs. and containing about 70 per cent. of metallic iron: it was forwarded to the Reorkee Works." Mining here would be expensive, and the ore is refractory. Lime-stone in masses exists in the same stream. "Returning to the Eastward from Kotdwara to Khalagurh, the lower Hills adjacent to the Plains were found full of iron-stone, chiefly of a good workable description." Near Khalagurh, and from Ramgunga up to Berana and along the Road to Lal Jhung iron-stone is found. The ores of all these places belong to the class called limonite. "The ores from the upper beds are frequently cellular, and the narrower beds are chiefly formed of nodules of iron, mixed up clay a small proportion of lime and silicious matter—they also sometimes contain small flakes of mica. The lower beds of red ore frequently are found to have flakes of the adjacent white clay interspersed through them." The lower beds

are unexceptionable, and the upper will be found valuable for reducing the Lower, while mining will be found exceedingly easy. "These ores are precisely similar to the valuable deposits so expensively worked in many parts of Europe and in the United States of America, and they are also of the same character as the ores found in the extensive mineral fields of South Africa recently investigated by myself, where they are found overlying a valuable coal deposit." Mr. Sowerby speculates on the geological formation of the beds, and observes that the whole of the deposits are accessible by waggons, and the only limit to the production of iron is the supply of fuel. The forests are as dense as possible, and would be sufficient to keep 200 blast furnaces at work each producing 3 tons a day. The annual supply would be upwards of 2,00,000 tons a year. Mr. Sowerby supplies a valuable list of the localities of the ore :—

BHABUR IRON ORES. **LIST OF SPECIMENS, WITH REMARKS.**

	No.	Locality.	REMARKS.
GOLAH.	1	Beejapoor, ...	Heavy and rich.
	2	Ditto, ...	Tufaceous lime-stone.
	3	Pepul Pokree, ...	Workable, 2 feet bed.
	4	Muchear, ...	3 feet bed, clayey and poor, good for mixing.
	5	Puncalee, ...	Micaceous, sandy and poor.
	6	Ditto, ...	Bog ore, workable.
	7	Chownilla, ...	Narrow bed, poor, but workable.
BOHE.	8	Bhoonka, ...	Good ore, very serviceable.
	9	Ditto, ...	Poor, but serviceable.
	10	Dechouree, ...	Bottom of shaft 20 feet deep.
	10 A	Ditto, ...	12 feet below surface green clay.
	11	Ditto, ...	From blocks on surface very rich.
	12	Ditto, ...	Ditto ditto, rich.
	13	Ditto, ...	Ditto, calcined.
	14	Ditto, ...	White sand-stone.
	15	Ditto, ...	Red ferruginous clay, useful for reducing.
	16	Ditto, ...	White fire-clay, requires well preparing.
	17	Ditto, ...	High up in the hill, good ore.
	18	Ditto, ...	Ditto ditto, hydrated ditto.
DUBEK.	19	Ditto, ...	Ditto, poor bog ore.
	20	Ditto, ...	Clayey slate, with stains of iron.
	21	Ditto, ...	Lime-stone from Dechouree, good.
	22	Shait, ...	Surface, specimen poor.
	23	Gugaree, ...	Ditto, ditto very poor.
KITCHEN.	24	Ghutoorah, ...	Workable ore, very fair.
	25	Ditto, ...	Clayey, workable.
	26	Umraihae, ...	Good workable ore.
	27	Ditto, ...	Ditto ditto.
	28	Ditto, ...	Ditto ditto.
KOSILLA.	29	Ditto, ...	Poor, but workable.
	30	Pat Kot, ...	Ferruginous quartz, refractory.
	31	Ditto, ...	Refractory.
	32	Bhora Kot, ...	Ditto, { Quartz.
	33	Ditto, ...	Ditto, { Quartz.
RANGUNGA.	34	Ghaitee Pahar, ...	Poor, but workable.
	35	Choopra, ...	Ditto, ditto ditto.
	36	Moola Gharee, ...	Ditto, ditto, much on surface.
	37	Dungar Nuddee, ...	Heavy rich red iron ore.
	38	Ditto, ...	White clay interspersed.
	39	Panoad, ...	Poor, much on surface.
	40	Chookam, ...	Workable small bed.
	41	Choopra, ...	Lime-stone, tufaceous.
	42	Kosilla, ...	Ditto Ditto.
	43	Ghurra, ...	4 feet bed, poor but workable.
BOXSUR.	44	Ramgunga, ...	Small bed, poor.
	45	Ditto, ...	Ditto ditto.
	46	Ditto, ...	Below Ghurra good workable ore.
	47	Ditto, ...	Lime-stone tufaceous—M. Ghurra.
	48	Boxsur, ...	Fair, workable, much on surface.

	No.	Locality.	REMARKS.
RANGUNA.	49	Patlee Doon, ...	Workable.
	50	Ditto, ...	Poor, workable.
	51	Ditto, ...	Very ditto.
	52	Ditto, ...	Poor, workable.
	53	Ditto, ...	Ditto ditto,
	54	Ditto, ...	Ditto ditto,
PALAEN.	55	Choulcherree, ...	A kind of bog ore, poor.
	56	Ditto, ...	Heavy, rich.
SOFA.	57	Karee, ...	Much on surface, good, workable.
	58	Ditto, ...	Ditto heavy, workable.
	59	Kotree, ...	Refractory, but workable.
	60	Ditto, ...	Workable.
KOE.	61	Kotdwara, ...	Very serviceable iron-stone.
BOWASON KOT.	62	Kotdwara, ...	Very excellent, serviceable ore.
	63	Ditto, ...	White fire-clay, good.
	64	Ditto, ...	Workable, but poor.
	65	Lol Dak, ...	3 feet bed, poor.
	66	Ditto, ...	2 feet ditto, ditto.
	67	Ditto, ...	Ditto ditto.
	68	Ditto, ...	Poor, 2 feet 6 inches.
	69	Mundil, ...	Poor, small bed, contains lime.
GANGER.	70	Ditto, ...	Ditto ditto ditto.
	71	Jumnea Bagh, ...	A kind of bog ore, rich specimen.
	72	Ditto, ...	Heavy and rich, but refractory.
	73	Ditto, ...	Ditto, but not rich.
	74	Tal Nuddee, ...	Poor and refractory.
	75	Ditto, ...	Ditto ditto.
	76	Ditto, ...	Rich, heavy and refractory, broken from the large mass sent to Roorkee.
	77	Ditto, ...	Rich, but refractory.
	78	Ditto, ...	Killas, poor.
	79	Ditto, ...	Carbonaceous shale impure.
	80	Ditto, ...	Ditto very impure.
	81	Ditto, ...	Lime-stone tufaceous.
RANGUNA.	82	Kotdwara, ...	Lignitic coal.
	83	Dohuleund, ...	Good workable ore.
	84	Ditto, ...	Workable ore.
	85	Khalagurh, ...	Poor.
	86	Lol Jhung, ...	Workable iron-stone.
	87	Dahla, ...	Ditto ditto.

On 12th February, Mr. Sowerby reports that "the work about the water-wheel at Dechouree is now nearly completed : the blast pipes, which are of wood, have been made, and are ready for fixing. The blowing cylinders, also of wood, are now being fixed in their place." The charcoal is nearly ready, and the bunding of the river is complete, while experiments are making to ascertain the direction, thickness, and extent of the beds.

On the 29th February, Mr.^{rs} H. Ramsay, Commissioner of Kumaon submits a report by Mr. Barratt on the mineral deposits of Kumaon. He observes that the iron mines are useless as too far from the plains. The copper mines could only be improved to the advantage of the native lessee, and the lead mines would produce no profit. He recommends that Messrs. Barratt and Gray be sent back to England. On the 29th March the Lieut. Governor assents. Mr. Barratt's report bears date 20th February, 1856. He says there was an old copper mine worked by the Rajahs about 3 miles west of Pepulee. There is another mine "about a mile North of Biergunga Bridge, on the western bank of the Aluknunda River, in Mullah Nagpore." The lode is wide but not rich or promising, and the wood is sufficient only for native smelting. The "metalliferous formation is situated about a quarter of a mile North-East from Murbuggettee village, and about two miles up the Nundaknee or Nundgunga River from Nundprag, in Puttee Barhasee, (pergunnah Desolee.)" The lode is promising and accessible ; water and fuel are abundant. Old copper mines were examined at "Kerraye, Belar, Raie, Seera, Tomacotee, Dobree, and Dhunpore" but all would require more money than they are worth to re-open them. The Dobree mine is rich, but so badly ventilated that a candle will not burn, and unless new galleries are opened it must be abandoned. The lessee in that case might pay a higher rent. Copper on the spot is sold at £224 per ton. Tomacotee might also be opened, but Mr. Barratt is not of opinion that Government could realize much for a few years.

Mr. Barratt visited old iron mines at "Badersaie, Bomaatha Cherry Khan, Hartjasal, Harthakhan and Bejouragurd, Danda, Davee Khan, Rajah Khan, Mokka Khan, and Calabun." They are all far back in the mountains, and the native lessees pay scarcely any rent.

Lead mines were examined at "Raie, Chendak, Kerraye, Patal, Dhunpore and Jak." Of these the Patal lead mine might be tried, and the Dhunpore lead mine would in Cornwall be worth much. The Jak mine would in Mr. Barratt's opinion be found rich and remunerative, and might be tried at a very small expense. Gold washings were found in many of the rivers. The expense of the experiments was Rs. 1402-4-9.

On 3rd May, 1856, the Government of the North West Provinces submits a Memorandum from Lieut. Col. Drummond explaining the failure of the iron operations at Dechouree for this year. The Lieut. Governor recommends that Lieut. Col. Drummond should be permitted to engage the services of two founders to assist Mr. Davies. The experiment should be fully tried, for the pig iron produced at this furnace will supply the Roorkee Workshops. The work has been stopped simply for want of trained hands. The natives could not keep the hearth clean of ashes, and consequently the liquid metal could not be drawn from the furnace. The iron turned out is of the very best quality of cast iron.

On April 25, Mr. Sowerby reports on the experimental blast furnace at Dechouree. It was begun in November, 1855, under great disadvantages from the want of workmen and tools. The furnace was commenced in the middle of November. The foundations are of undressed rubble masonry, the adjacent "boulders being split and laid in mud and grouted with the white clay made into a semi-liquid state, and poured into the spaces between the stones; this made a tolerable solid foundation." The upper walls are built of the same material laid in mud and lime. The fire-bricks were burnt when in place in the furnace. They were very good. The clay however requires to be carefully selected. "As soon as dug it should be first calcined, small charcoal being the best for calcining it; it should then be ground in a good mill into a fine powder like soorkee, and afterwards mixed with a small portion of the clay and water sufficient to make it plastic. In moulding this would be best done on a good flagged pavement of sufficient area, being allowed to remain there till dry; the bricks if placed on the ground get twisted and spoiled, and frequently crack when drying; they require also to be turned over and scraped, the loose earth adhering to them, this causes additional labour; when thoroughly dried they should be burnt in properly constructed kilns with small charcoal. Fire bricks thus carefully prepared would be found equal to the best made in England, which are frequently not prepared with so much care. The proper colour of the bricks is a slight flesh colour, and they are rather tender. The water-wheel that has been constructed for supplying the blast is eighteen feet in diameter and four feet abreast. It has thirty-two buckets, the axle and arms are of saul wood; the buckets and surrounding is of schymul; the bearings and beams are also of the latter timber; the cranks, connecting rods and piston rods are of saul." Such a wheel moving at ten revolutions per minute is equal to thirty horse power. It was almost too large for the present machinery. Mr. Sowerby proceeds to

describe the machinery of which he gives a plan, and also the bunds of the river. He then describes the process of making charcoal, which cost Rs. 808 for fifty tons, or about 5 annas a maund. Tramways are required to bring the fuel from the forest, which ought not to cost more than Rs. 500 a mile. Limestone is cheap and plentiful.

At the first trial of the furnace the air chamber leaked, and the cylinders were connected directly with the blast pipes. The iron taken out when remelted in a small cupola ran out in small pigs of the quality known as No. 1 grey metal pigs, 1st quality. In the second trial the hearth could not be kept clear. The work was too fierce for untrained natives, and European smelters should at first be brought out. The iron taken out was as good as at first, and the furnace had sustained no damage.

Mr. Sowerby thinks that sixty furnaces might be judiciously erected, and suggests machines by which the water power available might be rendered sufficient. Branch works should be established a little way in the hills, say at Agur or Ramgurrh; "any thing like a failure of the works as a commercial speculation will most certainly be the result of mismanagement or misapplication of capital, from an erroneous conception of the proper mode of carrying out the works." The expenses incurred in the experiment amount to Rs. 10,478, every thing having "cost at least 25 per cent. more than they should have done for want of good tools, good workmen and previous preparations." Two founders have been ordered out from England.

REVENUE REPORT OF THE N. W. PROVINCES.

For 1855-56.

ON 29th November, 1856, the Sudder Board of Revenue, North Western Provinces submits a report on its operations for 1855-56. The year has upon the whole been unfavourable, generally from heavy and untimely rain. The land revenue has nevertheless been realized with little coercion. The gross balances at the end of the year amounted to Rs. 8,19,650 nearly three times those of the previous year. Of this sum Rs. 1,51,353 is doubtful and Rs. 1,39,594 irrecoverable, and Rs. 3,16,650 nominal. The latter arise chiefly from reductions of jumma pending settlement. 1,85,378 dustucks were issued against 2,03,191 last year. The following Table shews the number of coercive measures :—

<i>Years.</i>	<i>Sales.</i>	<i>Farms.</i>	<i>Transfers Muhals.</i>	<i>Transfers Puttees.</i>	<i>Sequestra- tions.</i>
1854-55, ..	32	66	59	95	12
1855-56, ..	27	96	58	135	41

There has been a marked increase in summary suits. The proprietary mutations have decreased, except in the Saugor Division which is over-assessed. Partition suits have decreased. There has been an increase of resumptions chiefly in Jaloun and Jhansee. "During the year under report 41,768 acres of rent-free land have lapsed to Government by demise of incumbents, and 18,746 acres have been resumed, giving a total of 60,514 acres against 24,502 in 1854-55. The settlement of these lands proceeds satisfactorily; 5,468 lapsed tenures, aggregating 87,016 acres have been assessed at Rs. 35,837, and 405 resumed tenures, aggregating 15,054 acres, at a jumma of Rs. 5,787." A general improvement is observable in all districts in the condition of the village papers. The exception is the Saugor division, where the survey is going on. The Abkaree demand has risen Rs. 99,332. The stamp revenue shews a decrease of Rs. 53,828. The decrease is observable in every district, but the Board do not understand the cause. Much attention is paid to the instruction of Putwarees and the Tehseelee Amlahs are examined. The Appendix contains statistics which may be thus summarized :—

Revenue demand, ...	Rs. 4,55,57,442
Collections, ...	.. 4,47,87,792
Balances, ...	.. 8,19,650
Per-centage of balances on demand, ..	.. 68
Dustucks issued, ...	.. 1,85,378
Estates sold for arrears, ...	.. 27
Their Jumma, ...	Rs. 20,198
No. of estates farmed, ...	.. 96
Their Jumma, ...	Rs. 49,226
No. of estates transferred, ...	.. 58
Their Jumma, ...	Rs. 83,345
No. of puttees transferred, ...	.. 135
Their Jumma, ...	Rs. 28,529
No. of estates made Kham, ...	.. 41
Their Jumma, ...	Rs. 4,17,029
No. of summary suits, ...	.. 34,689
Of these decided, ...	.. 25,557
Adjusted or withdrawn, ...	.. 8,012
Mutations of property under decrees, ..	.. 2,485
" by private transfer, ...	.. 22,711

Partitions effected,	..	..	...	192
Lapees,..	..	...	..	328
Acres included in them,	...	...	...	41,768
Resumptions,	..	..	...	3,370
Acres included in them,	..	..	..	18,746
No. of villages in which papers have been filed,				89,214
No. in which papers have not been filed,			..	13,114½
Demands for Abkaree,	...	..	Rs.	22,99,734
Collections,	..	..	Rs.	21,79,980
Balances,	..	..	Rs.	1,19,754
Profit on stamps,..	...	..	Rs.	14,70,666
Miscellaneous net Collections,	..		Rs.	1,97,941
Fall of rain in 1854-55,	...	..	.. inches,	35.53
Previous mean,	..	...	...inches,	28.97

On 22nd December, Government approves the report, orders that the decrease in the Stamp Revenue should be investigated, and recapitulates certain improvements in the details of revenue administration introduced during the year. Of these the most important are "the course to be followed in the Revenue Department upon references from the Civil Courts in suits brought for the enhancement of the rents of Tenants, has been fully prescribed, and a great practical benefit has, through the ready co-operation of the Sudder Court, been gained for the people. Powers have been given to Collectors under clearly defined rules, for the prompt determination of all claims for ejectment, and all complaints of illegal dispossession, between Landlord and Tenant. The principles have been declared under which the tenure of cultivators, with fixed rights of occupancy, may, without violence to any legal title, become gradually improved, and made more certain, by means of the voluntary admission of a recognized power of alienation. In a like spirit, the liberty of Tenants to construct wells on their lands has been declared, under conditions which maintain, at the same time, the just interests of proprietors. Drafts of Bills for an amended Dustuck Process ; for a more appropriate and effective Law of Partition ; for the more easy and satisfactory settlement of accounts between Co-Parceners, and for the collection of dues payable to assignees, in whatever character, of the Government *Revenue* as distinct from the owners of *Rent* have been prepared, and circulated for the opinions of all Revenue Officers. Suggestions have also been invited on important points connected with alleged defects in the present Law regarding summary suits for rent and exaction."

HISTORY OF SIND, A. D. 710 to 1590.

TRANSLATED FROM THE PERSIAN BY CAPTAIN G. G. MALET.

Bombay Records, No. XIII.

THIS book is divided into IV. Chapters.

The I. Chapter contains the Conquest of Sind with its Government under the Khaliphs, Buneo Oomaiyuh and Buneo Abbas.

The II. Chapter, the rule of the kings of Hindostan.

The III. Chapter, the rule of the Urghooneeyuhs.

The IV. Chapter shew how Akbar Shah acquired the country and what Ameers were appointed to and came to govern Sind.

In the year Hijree 92 (A. D. 710) Mahomed, the son of Kasim invaded Sind, seeking to revenge the indignity offered to certain Mussulman merchants in the time of Abdool Mulik. The reigning monarch was Rais Daher, whose father had acquired the throne through the love borne to him by the wife of the then reigning monarch, Rais Sahsee. No effectual opposition was made to Mahomed Kasim who invading the province of Sehwan took the towns of Tatta, above Mooltan, and was on his road to Delhalpore whence an order came from the Khaliph Wulleed that Mahomed Kasim having wrapped himself in the raw hide of an ox should be present at Darul Khaliphah. It appears that Kasim met with his death from the misrepresentations of the daughters of Rais Daher, who thus revenged themselves upon two of their enemies, the Khaliph Wulleed, who lost a faithful servant and Kasim who lost his life. The country remained in the hands of the Buneo Oomaiyuh Khaliphs up to the year of the Hijree 410 (A. D. 1019) when Sooltan Mahomed Gazee left Ghuznee, took Mooltan and Ooch, and deputed the Wuzer, Abdoor Ruzay, to finish the conquest which was finally accomplished in the Hijree 417 (A. D. 1026). In the year 422 (A. D. 1050) Sooltan Musnood succeeded his father to him succeeded in 433 (A. D. 1041) Sooltan Mondood, in 441 (A. D. 1049) Sooltan Mujdood ascended the throne, after him the turn of sovereignty came to Khoosruwi Moolk who after being deposed in 583 (A. D. 1187) by Sooltan Ghuyas-ood-deen Ghoree was confined at Ghuznee. From that time until the year of the Hijree 800 (A. D. 1397) the country was governed by 17 kings of the Ghorain and Mogul Dynasties. Under their rule Sind seems to have prospered. Some of the sayings of these monarchs were very apt such as that of Nasir-ood-deen Mahomed.

“The world is a dream in front of open eyes; with such a

dream the hearts of the good will not mingle" and again that of Sikunder Shah. "In this world if there is a king's throne what is it, Oh my friend, for no one can eat of the food except his own portion." At this time, viz. Hijree 800 (A. D. 1397) the Ameers despising the character of Ubdoor Busheed, the son of Sultan Mahomed, entered into a compact by which it was arranged that the real sovereignty of the country should pass into their hands, they from time to time electing a king. Their first four kings were elected from the tribes of Soomrah and Summah. The first was Soomrah, the son of Chundur he "cleared away from the borders of the country all the thorns, and refuse, the breeders of dissension and the disobedient." He was succeeded by his son Doda. To Doda with the consent of the Ameers succeeded Khufeef, to whom it appears the Jut Beloochees paid tribute. Then reigned Doda the son of Oomur, Oomur, Chunur, Doda and Urrah Mehl; this last monarch was so incapable of governing that he was rebelled against, and slain by Jam Oonnur who succeeded to the throne; he in his turn was killed by his vakeel. From the death of Jam Oonnur, to the commencement of the reign of the Urghooneeyuhs we have 10 kings, Joonuh, the son of Babuniyah Jam Babuniyah, the son of Jam Khair-ood-deen, Jam Nizam-ood-deen, Jam Ali Sher who "gave strength to the rules of justice." He invited the principal Ameers to a banquet and treacherously murdered them. Jam Tughlug Shah, Jam Sekunder, Jam Roydhun, Jam Sunjor succeeded, in whose time such customs and habits as were never known before in Sind were introduced, these poys and ryots lived in great happiness. Then came Jam Nizam-ood-deen, Jam Pheroz who spending his time in pleasure the nobles turned their heads to ruining their country; he ruled in Sind until 926 (A. D. 1520) when Sind was invaded by Shah Beg Urghoon. Shah Beg was the son of Meer Zoonoon, who was appointed to the office of Meerza of Kandahar, by the son of Sultan Hoosain Shah, the Meerza Budeen-ooz-Zuman with whom Meer Zoonoon continued in close connection until his death when fighting with the Oozbuks before Herat. Shah Beg having been compelled by Babur Badshaw to surrender Kandahar, he proceeded to Shawul where he remained for two years, but the scarcity of provisions, his sepoys during one season having nothing to eat but carrots and turnips, compelled him to make an incursion into Sind, this as we have before mentioned took place in the reign of Jam Pheroz. The reputation of Shah Beg secured him a numerous army, which he marched upon Tatta, this town he gave up to plunder. Shah Beg with entire success in his expedition, called a consultation of his Chiefs who feeling that their forces were not at present sufficient

for the military occupation of the whole of Sind wisely concluded a treaty with Jam Pheroz, to the effect that the country from Sukkur to Tatta should belong to Jam Pheroz and that the country above Sukkur should be ceded to Shah Beg. The further progress of Shah Beg in the settlement of his newly acquired territory is described with an account of his death. When Shah Beg was with his father at Herat, he always attended the assemblies of the learned and he was in the habit of calling them to his house twice a week. The results of this plan were "An Explanation of Kaffee-yuh"; "Marginal Notes to the Commentary of Mutalim" also "Marginal Notes to the Commentary of the Furayuz of Meer Syud Shureef." To the north of Seebee is seen a cupola which is called in Sindee tongue Maree or Gurhee, when any one goes there it disappears from sight. It is said to be a talisman made by former people and that beneath it there is a treasure.

In Kandahar there is a village called Bekhnahee near which there is a hill in which is a cavern with running water on all sides, a talisman is here, and a revolving wheel round which there are bricks of gold. The history of certain Syuds and holy men of Kandahar is detailed at length.

Shah Hoosain, having ascended the throne of his father Jam Pheroz, at the head of 50,000 men advanced against Tatta, but was by Shah Hoosain signally defeated, he went to Guzerat there remaining until he "took his life to paradise." Shah Hoosain subdued the Duhurs and Machees. He by the treachery of the Chief Minister of Sultan Mahomed, who administered poison to his master, was elected sovereign by the Beloochees and Lungahs. After these successes Shah Hoosain stormed the Fort of Dilawur which is described as having its walls equal in height to Alexander's wall, and as being built in such a desert that the eyes of the birds always look towards the clouds of heaven, there not being one drop of water on the ground. He captured Mooltan and massacred the inhabitants. He defeated Khungar, a Chief in the neighbourhood of Kutch.

In the latter days of his life Meerza Shah Hoosain was struck with palsy. Whilst on a military expedition on the 11th Rubeeool-Awul at the village of Nalee Potruh the bird of his life heard the sound of "Do you come to your God with much pleasure?" His body was buried at Tatta, two years afterwards his remains were removed from thence and conveyed to Mecca, where they were placed near those of his father Shah Beg. The poets and learned men who flourished in the time of Meer Shah Hoosain were Meerza Mahomed (known by the name of Shaikh Meeruk), Shaikh Abdool Wuhab and Shaikh Meer Mahomed,

who were brothers, Shaikh Kootb-ood-deen Mahomed, Mukhdoom Rookhn-ood-deen, commonly called Mukhdoom Mutoo, Kazee Kazin, Kazee Abdoolla, Musluh-ood-deen Laree, Syud Taj-ood-deen, and the most perfect the most eloquent of poets, Shah Jahangheer Hashimee, who was descended from Tuyub Hurwee (of Herat). He came to Sind from Khorasan in the beginning of the reign of Meerza Shah Hoosain. His tomb is at Puttur. The new ruler over the Urghoons and Turkhans was Meerza Eesa who ascended the throne 962 (A. D. 1554); he was a good man in every sense of the word always being indulgent to the ryuts and sepoys; he died 974 (A. D. 1566) and was succeeded by Mahomed Bagee. In this reign the Urghoons rebelled, but being subdued he in his latter days shewed kindness by taking them under his shadow. In 979 (A. D. 1571) he destroyed himself.

To Meerza Mahomed Bagee succeeded Meerza Janee Beg, all the people found much comfort under his rule and slept in the swinging cradle of ease. Sultan Mahomed Khan was the next in order who acquired supreme power in Sind, he was a ruler with many excellent qualities. He was brave and charitable. From the days of his youth until his death he lived in plenty; but his temper was so passionate that he could not restrain himself. He shed blood without care. He was born in 898 (A. D. 1492) living 84 years. He was so strong that many times having put irons on his legs he threw himself from the bastion of Meerza Shah Hoosain's receiving room into the waters below, where was a deep and dangerous whirlpool, from whence he came out with the irons broken.

After the death of Sultan Mahomed, Sind fell into the hands of the agents of Julal-ood-deen Ukbar Shah. The chain of events by which this was brought about is given in the History. Mahomed Ukbar Shah gave Tatta to the Meerza Janee Beg, and nominated them to the command of 5000 men. Meerza Janee Beg died from inflammation of the brain and his son Meerza Ghazee Beg received the country of Tatta at the representation of Nuwah Ullamee.

UNIVERSITIES IN INDIA.

A COMMITTEE was appointed on the 26th of January, 1855, to prepare a scheme for the establishment of Universities in the Presidency Towns of Calcutta, Madras, and Bombay. The Committee have not dealt with the governing bodies of the Uni-

versities or their constitution, but exclusively with the examinations for entrance, degrees and honors in the several branches of Arts, Medicine, Law, and Civil Engineering. The Committee having on these subjects stated their convictions, His Lordship in Council is of opinion that an entrance examination should be required. The mode in which it is proposed to be held is most convenient. The Committee have wisely adopted the titles of Bachelor of Arts, and of Master of Arts making the higher degree the mark of awarded honors. The Governor General in Council considers that perfect knowledge of some kind should be required, that the wide range of subjects seems to call for some counteracting tendency. The Committee having suggested that the Senates should be subject to some central authority, the Governor General in Council is pleased to declare that the Governor General of India shall be Chancellor of the University of Calcutta and that the Governors of Madras and Bombay shall be the Chancellors of their respective Universities.* The Senate, is authorised by the Chancellor to appoint as many examiners as may be required for the University, the award to each being not greater than 1200 Rs. a year. As the Governor General in Council considers that the three Universities should be in their main features alike, the same body to whom is entrusted the scheme of the Calcutta University will likewise frame schemes for the Madras and Bombay Universities. The Hon'ble Sir James Colville is further appointed President of the Committee, which will choose its own Secretary. Professorships will if required, be founded. As the object of the Universities is to encourage a regular and liberal course of education, the form, government, and functions of the Indian Universities should, in their grand features, be coincident with those of the London University; whilst the detailed regulations for the examinations must be framed, with due regard to the affiliated Institutions so as to include the best portions of their curriculum. Broadly stated the plan of the University is as follows.

In Arts, an entrance examination to which all candidates of good moral character, and sixteen years of age and upwards, may on the payment of a fee be admitted. An Examination for the B. A. degree to which all candidates may be admitted on the payment of a fee and on certificate of four, or in special cases of three years' study and of good moral conduct in an affiliated Institution. An examination for Honors to be held immediately after the examination for the degree. The degree to be conferred upon those who pass the Honor examination.

* Here are given the names of the Fellows of the University of Calcutta.

In Medicine. "An Examination in the theoretical branches to which all may be admitted who have passed the entrance examination in Arts, and have been engaged in Medical Studies for two years in a recognized School.

An examination for the Degree of Licentiate in Medicine (L. M.,) to which all may be admitted who have passed the first examination, and who have been since engaged in Medical Studies for three years in a recognized School.

An examination for Honors in Medical Science, to be held immediately after the examination for the Degree of Licentiate.

An examination for the Degree of Doctor in Medicine (M. D.,) to which those only may be admitted who have taken the Degree of B. A., and been engaged for two years in the study or practice of Medicine after taking the Degree of Licentiate."

In Law. "An examination for the B. L. Degree to which all may be admitted after one year from the date of obtaining a Degree in Arts, provided they have attended Lectures in a recognized School of Law for three years.

An examination for Honors, to be held at a convenient time after the preceding examination."

In Civil Engineering. "An examination for the Degree of Master of Civil Engineering (M. C. E.,) to which all may be admitted who have obtained the Degree of B. A., and have since passed four years in the study and practice of the profession.

An examination for Honors to be held shortly after the preceding examination."

The standard for the proposed entrance examination differs little from that of the London University; that for the B. A. Degree differs rather in kind than in difficulty. It has been objected to the standard that it is too high, but apart from placing before students an object worthy of their best exertions, in no other way can a fair advantage be given to a student who prefers one peculiar branch of study. Suppose that the maximum number of marks on each of the five subjects is 100 and that the minimum of competence in each is 25, making in all the subjects 125; it is clear that the student who has but an average knowledge of all the subjects will have the advantage over the student who has reached perfection in one or two. In a word a low standard encourages mediocrity, a high standard genius. A separate examination is not proposed for the M. A. Degree but only those can receive it who have passed the Honor Examination. In the course for medical studies two years are to be given to theoretical and three to practical subjects. Every institution affiliated by one University will be recognized

by all; so that the students may be permitted to take their degree at that University they may prefer. "The great difficulty, however, which the Sub-Committee have had, is in fixing the test of admission in Languages.

As respects the entrance examination, the plan which is the one least liable to objection, is to require each candidate to pass in two of the languages, of which English must be one. Under this rule, it is supposed that the students of the Schools at the Presidency towns and hill sanitary stations, where the western classics are taught, will usually pass in English and Latin, or in English and Greek, or possibly in English and one of the Indian Vernaculars; ordinary Hindoo students in English and Bengalee or Hindee; Hindoo students of the Pundit class in English and Sanscrit; ordinary Mahomedan students in English and Persian or Urdoo (a variety of Hindee;) Mahomedans of the Moulavy class in English and Arabic; and students from the Burmese Provinces in English and Burmese. For a B. A. Degree in India the students of the Anglo-Indian Schools, it is expected by the Sub-Committee, will generally pass in English and Latin; Mahomedan students in English and Persian or Oordoo; and Hindoo students in English and Bengalee or Hindee. The Sub-Committee strongly recommend, that every candidate should be required to possess a critical knowledge of his own Vernacular language." The Sub-Committees have drawn up regulations for the proceeding to the degree in Arts, Medicine, Law, Civil Engineering, to be discussed and approved.* The Lieutenant Governor in his remarks upon the scheme (not final) drawn up by the Sub-Committees observes. In the Lower Provinces the knowledge of the English language is generally so defective that the student of the Anglo Vernacular Institutions, will not possess that exact and critical knowledge of the English language, which it is hoped will be insisted upon in the University examinations. The reasons given for the establishment of an entrance examination are upon the whole just, the age for admission should be sixteen, however if the student have a certificate affirming that for seven continuous years he with credit attended an affiliated Institution he should be admitted at the age of fourteen. Since Oordoo is the established language of ordinary instruction, this should be left prominently open to the selection of students. A merely elementary knowledge of Sanscrit and Arabic should at the entrance examination be required. The B. A. degree should be attainable after two years from the entrance examination. The tests for the exa-

* These regulations to which the following matter continually alludes are given in the original.

minations are not of too high a standard. Honors in languages should be granted to those who possess such a knowledge of Sanscrit or Arabic as implies a power of using them for the enrichment of the Vernacular tongues. The Degree in Arts should not be dispensed with, as a preliminary qualification for degrees in the professional branches. The Director of Public Instruction in North Western Provinces animadverting upon the reports of the Sub-Committees observes. The necessity of an entrance examination is obvious, the minimum age, on account of the precocity of native intellect should be fourteen instead of sixteen. The test of admission, in languages, as proposed by the Sub-Committees, is open to many objections. The existence of Oordoo, as a language separate and distinct from Hindee is ignored.* The inexpediency of such a proceeding, founded on the supposition (totally opposed to facts) that either Bengalee or Hindee is the Vernacular language of all Hindoos is, from the Government College Returns, at once perceivable. We find in the three Colleges at Agra, Delhi and Bareilly 552 students reading Oordoo and 12 Hindee.

The Right Hon'ble the Governor of Bombay in his Minute, dated 7th February, 1855, specifies the Senate of the Bombay University, remarks upon the entrance examination, opposes affiliation and proceeds. In addition to English a student before entering should have a thorough knowledge of his own vernacular language and one or other of the following "Greek, Latin, Sanscrit, Arabic, Persian, Murathee, Guzrathee, Canarese, Sindee, Portuguese." There should be two degrees; students should go up for their B. A. degree in not less than two years after they passed the entrance examination, for their M. A. in not less than two years after the B. A. Geology should not be omitted from the Physical Sciences. Should the titles adopted be the same as those in Great Britain, an Indian graduate and an English graduate, should at least have this in common, that up to a certain point they have appropriated equal proportions of the best knowledge within their reach. The Hon'ble G. G. Lumsden in a Minute, states what he considers to be the distinguishing features of the proposed University. He advises that a small body of University examiners should travel through the Presidency visiting the affiliated Institutions, and generally agrees with the former minute. The Right Hon'ble the Governor of Bombay in a further minute urges the necessity of a high preliminary standard to be exacted without exception of all candidates for University degrees in every profession. It is observed by His Lordship that his views, upon the establishment of Law degrees,

* A revised standard and a list of vernacular test books are given.

are most entirely in accordance with those of Mr. Howard. On two points the views of Mr. Howard might with advantage be modified. 1st, There is no reason for refusing Honors at the Bachelor's examination. 2nd, That the Doctor's Degree should not be awarded until five years after the inferior degree shall have been taken.

The College Council in their report on a scheme for granting Degrees in Medicine by the Sub-Committee of Medicine propose the following alterations and additions. The term of four years is not sufficient to enable students to acquire an adequate theoretical and practical knowledge of the Medical profession for independent practice. The student should not be allowed to proceed to his M. B. Degree until the age of 21 years. The title B. A. for the lower degree is preferable to G. A. The College Council then suggest various additions in accordance with their view that the candidates for the B. A. Degree should at least be 21 years of age, having studied during the period of five years at some affiliated Institution. Appendix A. contains the views of J. Don, M. D. and John Peet, Acting Principal, Grant Medical College, upon the standard of Medical Education for the Indian Universities. Appendix C. contains the reports of Major General Waddington, C. B. Chief Engineer of the Public Works ; of W. Scott, Lieutenant Colonel, Engineers ; of H. B. Turner, Lieut. Colonel, Superintending Engineer, Scind ; of J. H. G. Crawford, Major, Engineers ; of J. J. Berkley, Chief Resident Engineer, G. I. P. Railway Company, upon the qualifications requisite for the proposed Degrees of Master and Doctor of Civil Engineering.

Appendix D. is a report by Mr. Howard. Mr. Howard states that Law is a science and therefore the study of Law should not be commenced except upon a broad previous foundation.

"Mr. Howard is therefore of opinion, that if legal education is to be anything more than a name, or a somewhat dangerous amusement, the first Degree should be a clear test of the student's knowledge of legal principles, and aptitude for legal study.

That there should be no examination for Honors, but graduates should be named in the order of their merit, or, as at Haylebury, 'Distinguished,' 'Highly Distinguished.'

That a second Degree, not to be taken at an earlier period than three years from the first, should be given, and that high rewards in the shape of judicial employment should be held out to those who graduate.

When it is recollected that Barristers and Attornies cannot be admitted to practise until they have been in a state of pupil-

age for five years, unless they are graduates of Oxford or Cambridge, in which event the period is reduced to three years, Mr. Howard feels justified in saying that a less period will not be sufficient for the qualification of a native of India for a Degree."

Appendix E. contains the report of R. T. Reid, Perry Professor of Jurisprudence upon the qualifications requisite for the Law Degrees.

Appendix F. contains the substance of an introductory Lecture containing suggestions regarding Law Education by the Perry Professor of Jurisprudence in the Elphinstone College, with a further minute by the Hon'ble J. G. Lumsden, who observes that the basis of a liberal education should be made an indispensable requisite for the stamp of high distinction which the University will confer by the grant of a Superior Degree in any particular profession.

Mr. Lumsden observes. The present provincial schools are notoriously incapable of training up even a boy of the highest talents, so as to qualify him for presentation before a Board of University Examiners, or indeed to do more than we now expect of a common clerk. "There is not a School, in the Mofussil, the Poona College excepted, that could impart an education superior to what is given in Schools of the very lowest class at home. It seems then to be unquestionable that the first step to success in founding a University is the foundation of a sufficient number of really good and efficient Schools, capable of imparting to those who have the capacity and application to profit by their opportunities, at least as good an education as is to be acquired in the public and in the *best of the private Schools at home*. Here we require Schools of a higher order than the average class of English Schools. There a boy leaves his School to enter into a society more advanced in intelligence than that which he has left—a society, in fact, to the standard of which he has been working up. Here on the other hand, the boy with his fresh intelligence returns to the darkness of his home and to the bigoted observances of his domestic circle, where, instead of receiving fresh rays of light, the imperfect lights which he has acquired run the greatest risk of being speedily extinguished."

The Sub-Committee of Arts in their second report, revise their first scheme of examinations, and academical degrees, and Honors for the Universities of India adapting it more completely to the special circumstances under which Indian education is carried on. The Sub-Committee consider that with regard to degrees it is on the whole best to retain the old names indicative of an amount of mental training and knowledge which will at once be recognised. They prefer the term entrance to the term matri-

culatation as the title of the first examination. In regard to the mode by which the various Schools of learning should be connected with the University, the Sub-Committee see no valid reason for departing from the plan adopted at the foundation of the London University. This system of affiliation will they believe be found useful in improving existing institutions and in leading to the establishment of others. The affiliated Schools of one University should be acknowledged by all. The Sub-Committee think that the appointment of an entrance examination will lead the students to prepare themselves at an early age for succeeding at an University examination ; moreover success at the entrance examinations of itself is in the nature of a distinction. The difficulty of bringing students from the interior to the University has been provided for by ruling that examinations for entrance may be held simultaneously at Calcutta (or Madras or Bombay), and at certain specified places in the interior of the Presidency. This plan has been tried in Bengal in awarding the Government Scholarships and that with great success. "The great difficulty which the Sub-Committee have had is in fixing the test of admission in languages. This difficulty arises from the circumstance, that whereas in England English is the only Vernacular, and Latin, Greek and Hebrew the only classical languages, in the Bengal Presidency alone there are four main Vernacular languages, and two classical languages besides the Occidental classics ; while English must be regarded in some cases as a classical, in others as a Vernacular language.

As respects the entrance examination, the Sub-Committee have come to the conclusion, that the plan which is least liable to objection, is to require each candidate to pass in two of the languages, of which English must be one. Under this rule, it is supposed that the students of the Schools at the Presidency towns and hill sanitary stations, where the Western classics are taught, will usually pass in English and Latin, or in English and Greek, or possibly in English and one of the Indian Vernaculars ; ordinary Hindu Students in English and in Bengalee, Urdu or Hindee ; Hindu Students of the Pundit class in English and Sanskrit ; ordinary Mahomedan Students in English and Persian or Urdu ; Mahomedans of the Moulavy class in English and Arabic ; and students from the Burmese Provinces in English and Burmese.

The Sub-Committee are unanimous in thinking, that an Examination for Honors at entrance is quite unnecessary. They are of opinion that the standard of the entrance examination papers should be moderately high, so that the being placed by the Examiners in the First Division should be evidence of considerable academical progress at the age of sixteen, the

minimum age of admission, but that more than this is not required. And they think that a moderate amount of knowledge in each branch should be sufficient to give candidates a place in the Second Division, and thus enable them to study for the Degrees."

It is proposed to admit to "the examination for the B. A. Degree, at any Indian University, those who have passed the entrance examination at that or any other Indian University, and have prosecuted their studies at any one of the affiliated Institutions for at least three years subsequent to entrance. The Senate might also have the power to admit to this examination, students who, though not belonging to an affiliated School, can satisfy the Senate that they have pursued a regular course of study under qualified tuition at least four years subsequent to entrance, and that they are of good moral character.

The Sub-Committee are further of opinion, that during the first three years of the existence of the Universities, the Senates should admit to the examination for the degree of B. A. any persons who has passed the entrance examination, and can produce certificates of good moral character.

For a B. A. Degree in India, the Sub-Committee think it sufficient, so far as languages are concerned, that the candidates, as at entrance, should be required to pass in at least two of the languages of which English must be one. The Sub-Committee strongly recommend that every candidate should be required to possess a critical knowledge of his own Vernacular language, and that the examination should be so conducted as to put this knowledge strictly and thoroughly to the test. For the Honor Examination, in the branch of Languages, the Sub-Committee would further make it compulsory on every Student to pass in a second classical language ; so that, to obtain honors in languages, every Anglo-Indian student, generally speaking, would undergo an examination in Latin and Greek, as well as in his own Vernacular, English ; every Hindu student in English and Sanskrit, besides his own language ; and every Mahomedan student in English and Arabic, as well as in Persian or Urdu. Thus the smallest number of languages which each candidate is required to know will be less by two for a Degree, and less by one for Honors, than at the London University.

In Mathematics and Natural Philosophy, the standard of the London University has been altered only by introducing the subject of Optics, and slightly modifying the course in Astronomy.

In addition to the usual chief branches of Ancient History, the Sub-Committee have not only added the History of India, but also that of Modern Europe ; and have joined with them all the study of the Principles of Historic Evidence.

In the standard for the Mental and Moral Sciences, Mental Philosophy, is included.

The Physical Sciences include Animal Physiology, Physical Geography, and Chemistry.

The Sub-Committee are of opinion that, in the examination for the B. A. Degree, the standard of the papers should be moderately high, so as to afford, in regard to the candidates placed in the First Division, evidence of considerable academical progress and fitness for the Honor Examination; but that a moderate amount of knowledge in each branch should suffice to secure the candidates a place in the Second Division, and a Degree."

It seems to the Sub-Committee, that there should be five distinct branches of learning in which Honors "may be taken by any person who passes the examination for the B. A. Degree, and is placed by the Examiners in the First Division. These are:—

1. Languages.
2. History.
3. Mathematics and Natural Philosophy.
4. Natural History and the Physical Sciences.
5. The Mental and Moral Sciences.

The branch of **LANGUAGES** usually connected with History has been rendered complete in itself, by the introduction of Comparative Grammar, the History of English Literature, and the Principles of Composition. Branches 3 and 4 are almost the same as similar branches of Honors in the London University.

From branch 5 the **MENTAL AND MORAL SCIENCES**, they have removed the subjects of *Political Economy* and *Political Philosophy* now included in History, and have supplied their place by Natural Theology and other important topics. In this branch five subjects are compulsory, *viz. Logic, the Philosophy of Rhetoric, Natural Theology, Moral Philosophy and Mental Philosophy*. A sixth must be selected by each student from the following list:—

- a. The Philosophy of the Inductive Sciences.
- b. The Elements of Jurisprudence.
- c. The Philosophy of Education.
- d. The Evidences of Revealed Religion, as contained in Butler's Analogy and Paley's Evidences.

Candidates for Honors must proceed to the Honor Examination immediately after taking the Degree of B. A. in the first class all those who fail to come up for a Degree Examination within five years from their passing the Entrance examination will be excluded.

Every candidate who obtains Honors in any one or more of

these five branches should, in the opinion of the Sub-Committee, be entitled at once to the higher Degree of M. A. without payment of any fee."

The Sub-Committee propose "to dispense altogether with the examination for the Degree of Master of Arts, and to prescribe in its stead, the examination for Honors at the B. A. Degree. In no case would they confer the M. A. Degree without examination, but they propose this distinction. They would confer the Degree of M. A. immediately and gratuitously on those who in the same year take Honors in any one or more of the prescribed branches of knowledge at the B. A. Degree. They would also confer it on payment of a fee upon any person who has passed the B. A. examination, and who in any subsequent year may pass the Honor Examination in any one of the appointed branches; but they would allow such a student no other honor, however high his position might be on the passed list.

Students intending to prosecute their further studies in Law, Medicine and Civil Engineering may, by special diligence, prepare themselves for the B. A. Degree within three years from their entrance examination. They will be examined, but even though they pass, the Degree itself will not be conferred upon them till the prescribed period of four years has expired."

The rules drawn up by the several Sub-Committees for the examination of Students in Arts, Law, Civil Engineering and Medicine are as follows :—

ARTS ENTRANCE EXAMINATION.

The entrance examination shall take place once a year and shall commence on the first Monday in March. The chief examination will be held in Calcutta but candidates may be examined at Berhampore, Dacca, Patna, Cuttack, Benares, Agra, Delhi, Ajmere, Lahore. All candidates at or past the age of sixteen, having previously applied to the Registrar or to the Secretary of the Local Committee at one of the above mentioned places, may be admitted to this examination. "The Examination shall be conducted by means of printed papers, which shall be the same for all places in the interior as for *Calcutta*, and which may include a paper of questions to be asked and answered, and of sentences to be read and explained, orally.

Candidates for entrance shall be examined in the following subjects :—

1. LANGUAGES.

Two of the following Languages of which English must be one, viz.

English.
Greek.
Latin.
Hebrew.
Arabic.
Persian.

Sanskrit.
Bengali.
Hindi.
Urdu.
Burmese.

Candidates shall be examined in each of the languages in both prose and poetry ; the subjects being selected by the Senate *one year and a half* previous to the examination from any approved classical or standard works or authors, such as the following :—

English.

Pope, Cowper, Scott, Campbell, Addison, Johnson, Goldsmith, Southey, DeFoe.

Greek.

Homer, Xenophon.

Latin.

Virgil, Horace, Sallust, Cæsar, Livy, Cicero.

Hebrew.

Arabic.

Alif Laila, Nafhat al Yaman.

Persian.

Gulistan, Bostan, Yusuf-o-Zulaikha, Akhalah-i-Muhsini, Anari Suhaili.

Sanskrit.

Raghuvansa, Kumara Sumbhava.

Bengalee.

Tota Itihas, Life of Raja Krishna Chundra Roy, Arabian Nights, Ramayun.

Hindee.

The Ramayun.

Urdu.

Burmese.

The papers in each language shall include Questions on Grammar and Idiom.

Easy sentences in each of the languages in which the Candidate is examined shall be given for translation into the other language.

II. HISTORY AND GEOGRAPHY.

The Outlines of General History, as contained in Marshman's Brief Survey, or other similar works ; and the Outlines of

Indian History as contained in Murray's History of India, or other similar works.

A general knowledge of Geography, and a more detailed knowledge of the Geography of India.

III. MATHEMATICS AND NATURAL PHILOSOPHY.

Arithmetic and Algebra.

The ordinary Rules of Arithmetic.

Vulgar and Decimal Fractions.

Extraction of the Square-root.

Addition, Subtraction, Multiplication and Division of Algebraical Quantities.

Proportion.

Simple Equations.

Geometry.

The first three books of Euclid.

Mechanics.

Composition and Resolution of Statical Forces.

The simple Mechanical Powers, with the ratio of power to weight in each. Centre of Gravity.

IV. NATURAL HISTORY.

A general knowledge of the habits and characteristics of vertebrated animals, as described in Patterson's "Zoology for the Use of Schools," or in any similar work.

General economy of vegetation and the simple or elementary organs of plants, as contained in the first 46 Sections of "Vegetable Physiology" in Chambers's Course, or in any similar work.

In Branches II. III. and IV. the answers may be given in either of the languages in which the Candidate is examined.

At the close of each day's examination at any places in the interior above-mentioned, the answers of each candidate shall be sealed up by the *Secretary to the Local Committee of Public Instruction*, and forwarded immediately to the Registrar.

On the morning of the *fourth Monday* after the examination, the Examiners shall arrange in two divisions, each in alphabetical order, the passed candidates to each of whom shall be given a certificate of age and class."

BACHELOR OF ARTS.

The examination for the B. A. Degree shall take place once a year and commence on the first Monday in April. Though candidates may be admitted to the examination in three years after

passing the entrance examination, yet the Degree will not be confirmed until the fourth year. "Every person who has passed the entrance examination at either of the Universities of *Madras* or *Bombay*, shall be admitted to the examination for the Degree of B. A. in the *Calcutta* University, provided he shall first satisfy the Registrar that he is of good moral character, and that he has prosecuted, during the period that has elapsed since his passing the entrance examination, a regular course of study in one of the Institutions affiliated to either of those Universities.

Applications must be made and certificates forwarded to the Registrar at least *fourteen* days before the examination begins. Notice in writing must also be given, by the candidates, of the languages in which they wish to be examined.

The fee for the degree of B. A. shall be twenty-five Rupees. No candidate shall be admitted to the examination, unless he have previously paid this fee to the Registrar. If a candidate fail to pass the examination, the fee shall not be returned to him. He may be admitted to any one or more subsequent examinations on payment of a like fee of twenty-five Rupees on each occasion.

The examination shall be conducted chiefly by means of written or printed papers, but the Examiners may also put *viva voce* questions to any candidate in the subjects in which they are severally appointed to examine.

Candidates for the degree of B. A. shall be examined in the following subjects:—

I. LANGUAGES.

Two of the following Languages, of which English must be one:—

English.	Sanskrit.
Greek.	<i>Bengalee.</i>
Latin.	<i>Hindee.</i>
Hebrew.	<i>Urdu.</i>
Arabic.	<i>Burmese.</i>
Persian.	

Candidates shall be examined in each of the languages in both prose and poetry; the subject being selected by the Senate *two years* previous to the Examination from any approved classical or standard works or authors such as the following:—

English.

Milton, Shakespear, Dryden, Pope, Young, Thomson.
Bacon, Swift, Addison, Johnson, Goldsmith, Burke, Southey, Macaulay.

Greek.

Homer, Sophocles, Euripides, Herodotus, Thucydides, Xenophon, Demosthenes, Plato.

Latin.

Virgil, Horace, Cæsar, Cicero, Livy, Tacitus.

Hebrew.

Arabic.

Alif Lailah, Nafhat al Yaman, Ikhwan al Safa, Soyuti's Tarikh al Kholfā, Tarikh Yamin.

Persian.

Sekandar Nameh, Gulistan, Dewan of Hafiz, Akhlaq-i-Jalali (or Nasiri), Dewan of Orfi, Abu-al-Fazl's Letters.

Sanskrit.

Rughuvansa, Kumarasumbhava, Kiratarjuniya, Viracharita, Uttaracharita Mudrarakshasa.

Bengalee.

Batrish Singhasan, Purush Parikhya, Betal Panchabingsati, Pro-bodh Chandrika, Mahabharat, Ramayan, Meghaduta, Sakantala, Annada Mangal.

Hindee.

Urdu.

Burmese.

The papers in each language shall include Questions on Grammar and Idiom.

Sentences in each language shall be translated into the other.

II. HISTORY.

The principles of historic evidence as treated in Isaac Taylor's two works on the subject, or other similar books.

The History of England, (including that of British India,) to the end of 1815.

Elphinstone's History of India.

Ancient History, with special reference to the History of Greece to the death of Alexander, the History of Rome to the death of Augustus, and the History of the Jews.

The Historical Questions will include the Geography of the countries to which they refer.

III. MATHEMATICS AND NATURAL PHILOSOPHY.

Arithmetic and Algebra.

The ordinary Rules of Arithmetic.

Vulgar and Decimal Fractions.

Extraction of the Square-root.

Addition, Subtraction, Multiplication and Division of Algebraical Quantities.

Simple and Quadratic Equations, and questions producing them.

Algebraical Proportion and Variation.

Permutations and Combinations.

Arithmetical and Geometrical Progression.

Binomial Theorem.

Simple and Compound Interest, Discount, and Annuities for terms of years.

The nature and use of Logarithms.

Geometry.

The first six books of Euclid, and the eleventh book to Prop. XXI, with deductions.

Conic Sections.

Plane Trigonometry.

Solution of all cases of Plane Triangles. The expression for the Area of a Triangle in terms of its sides.

Mechanics.

Composition and Resolution of Forces.

The Mechanical Powers.

The Centre of Gravity.

The general laws of Motion.

The motion of falling bodies in free space and down inclined planes.

Hydrostatics, Hydraulics and Pneumatics.

Pressure of liquids and gases, its equal diffusion and variation as the depth.

Specific Gravity.

Description and explanation of the barometer, siphon, common pump, forcing pump, air-pump, and steam-engine.

Optics.

Laws of Reflection and Refraction.

Formation of images by simple lenses.

Astronomy.

Elementary knowledge of the Solar System, including the phenomena of Eclipses.

IV. PHYSICAL SCIENCES.

Chemistry.

The Atmosphere, its general nature and condition ; its cor-

ponent parts—Oxygen and Nitrogen ; their properties, water and carbonic acid ; proportion of these substances in the air.

Chlorine and Iodine, as compared with Oxygen.

Water ; its general relation to the atmosphere and earth : its natural estates and relative purity ; sea water, river water, spring water, rain water, pure water ; effects of heat and cold on it ; its compound nature ; its elements.

Hydrogen ; its nature and proportion in water ; its presence in most ordinary fuels ; its product when burnt.

Sulphur ; phosphorus, and carbon, generally.

Nitric acid, sulphuric acid ; carbonic acid ; their elements.

Hydrochloric or muriatic acid.

Alkalies, earths, oxydes, generally.

Salts ; their nature generally ; sulphates ; nitrates ; carbonates.

Metals generally ; iron, copper, lead, tin, zinc, gold, silver, platinum, mercury.

Powers of matter ; aggregation ; crystallization ; chemical affinity ; definite equivalents.

Combustion ; flame ; nature of ordinary fuel ; chief results of combustion, *i. e.*, the bodies produced.

Heat ; natural and artificial sources ; its effects ; expansion ; solids, liquids, gases, thermometer, conduction, radiation, capacity, change of form, liquefaction, steam.

Animal Physiology.

As contained in Knox's translation of Milne Edwards' Zoology, or other similar works.

Physical Geography.

Physical Geography, as contained in Hughes or any other similar work.

V. MENTAL AND MORAL SCIENCES.

Logic.

The Elements of Logic, as contained in Whateley or any similar work.

Moral Philosophy.

Moral Philosophy, as contained in Wayland, Abercrombie, or any similar work.

Mental Philosophy.

Mental Philosophy, as contained in Abercrombie, Dr. Payne, or any similar work.

On the morning of the *second Monday* after the examination, the Examiners shall arrange in two divisions, each in alphabetical order, such of the candidates as have passed. Those in the

first division shall be recommended for the examination for Honors.

For the first three years after the University shall have been established, candidates will be admitted to the examination for a degree of B. A. who have at any time previously passed the entrance examination, and can produce Certificates of good moral character.

Any candidate for honors who has been placed in the first division at the examination for the degree of B. A., provided he has not delayed proceeding to the examination for that degree more than five years from the date of passing the entrance examination, may be examined for Honors in any one or more of the following branches :—

- 1.—Languages.
- 2.—History.
- 3.—Mathematics and Natural Philosophy.
- 4.—Natural History and the Physical Sciences.
- 5.—The Mental and Moral Sciences.

Candidates for Honors must give notice in writing to the Registrar, on or before the *last day of March*, of their intention to enter into the examination, specifying the branch or branches in which they desire to be examined.

1. Candidates for Honors in *LANGUAGES* shall be examined in Latin and Greek, or in English and Arabic, or in English and Sanskrit.

In Latin, Greek and English, a limited range of subjects shall be selected by the Senate from approved classical authors : and in Arabic and Sanskrit the examination shall be in the following works :—

Arabic.

Alif Lailah, Nafat al Yaman, Ikhwán al Safa, Taríkh al Kholfa, Taríkh Yamíní, Hamásah, Maquimát Harírí (one-half) Dewán Ibn Fáriz.

Sanskrit.

Raghuvansa Kumarasambhava Kiratarjunífyá, Sisúpalavadha, Viracharita, Uttaracharita, Mudrarakshasa, Sakuntalá, Kadambari, Part I.

The examination shall include translation into any vernacular language, and retranslation from any vernacular language. It shall also include composition in any vernacular language upon questions arising out of the authors selected for examination. The candidates will also be examined in Comparative Grammar and Philology, the Principles of Composition and the History of English Literature.

The examination shall be so conducted as to test the exact and critical acquaintance of the candidates with the subjects selected by the Senate, and also their general acquaintance with the literature of the languages in which they are examined.

II. Candidates for honors in HISTORY shall be examined in the following subjects :—

The History, political, constitutional, social and religious, of the principal ancient and modern nations of the world.

The History of modern civilization.

Chronology.

Ethnology.

Geography, in its bearing on History.

Political Philosophy.

——— Economy.

III. Candidates for Honors in MATHEMATICS and NATURAL PHILOSOPHY shall be examined in

Algebra, including the theory of Equations.

Plane Analytical Geometry.

Solid Geometry, treated geometrically.

Differential and Integral Calculus.

Spherical Trigonometry.

Statics and Dynamics.

Hydrostatics.

Hydraulics and Pneumatics.

Optics.

Astronomy.

IV. Candidates for Honors in NATURAL HISTORY and the PHYSICAL SCIENCES shall be examined in

Zoology and Animal Physiology.

Botany and Vegetable Physiology.

Geology and Mineralogy.

Chemistry.

Electricity and Magnetism.

Meteorology.

Physical Geography.

V. Candidates for Honors in the MENTAL AND MORAL SCIENCES shall be examined in

Logic.

Philosophy of Rhetoric.

Natural Theology.

Moral Philosophy.

Mental Philosophy.

They shall also be examined in one at least of the following subjects, to be selected by the candidate himself :—

Philosophy of the Inductive Sciences.

Elements of Jurisprudence.

Philosophy of Education.

Evidences of Revealed Religion as contained in Butler's Analogy and Paley's Evidences.

The examinations for Honors shall take place in the following order, *viz.*, Languages in the first week, History in the second, Mathematics and Natural Philosophy in the third, Natural History and the Physical Sciences in the fourth, and the Mental and Moral Sciences in the fifth week, after the general examination for the B. A. degree.

The examination shall take place on the *Tuesday, Wednesday and Thursday* of each week, in the mornings from 10 A. M. to 1 P. M., and in the afternoons from 2 to 5 P. M.

The Examiners shall publish, in the week following each examination for Honors, a list of the candidates who acquit themselves to their satisfaction, in order of proficiency, and in three classes ; candidates shall be bracketed together, unless the Examiners are of opinion that there is a clear difference between them.

In determining the relative position of candidates for Honors in the several branches, the Examiners shall have regard to their proficiency in the corresponding subjects at the B. A. Examination.

The first student of the first class in each branch shall receive a Gold Medal and a prize of Books to the value of One hundred Rupees, and the second student of the first class in each branch shall receive a Silver Medal and a prize of Books to the value of One hundred Rupees, provided that their answers are considered by the Examiners to possess sufficient merit.

Every person who, immediately after passing the B. A. Examination, obtains Honors in any one or more of the above mentioned five branches of knowledge, shall be entitled to the degree of Master of Arts without further examination or fee.

Any other graduate of this or any other Indian University, or of any of the Universities of the United Kingdom, may be admitted to the examination for the degree of M. A. on payment of a fee of fifty Rupees.

No special examination will be held, but the candidate must pass the Honor Examination in at least one of the prescribed branches of knowledge. He must give notice in writing to the Registrar, on or before the *last day of March*, of his intention to enter into the examination, specifying the branch in which he desires to be examined, and must at the same time furnish a Certificate of having received the degree of B. A.

Every candidate for the degree of M. A. is expected to possess a competent knowledge of every subject included in the branch in which he is examined.

If a candidate fail to pass the examination, the fee will not be returned to him. He may be admitted to any one or more subsequent examinations on payment of a like fee of fifty Rupees on each occasion.

The names of the successful candidates for the M. A. degree shall be published in an alphabetical list, and each successful candidate shall receive with his degree a Certificate setting forth the branch in which he was examined."

The Sub-Committee of Law recommend as tests for an ordinary Degree in Law. "An examination sufficient to test the candidate's knowledge of the general Principles of Jurisprudence.

An examination sufficient to test the candidate's knowledge of the several systems of Municipal Law which obtain in this country—*first*, as it concerns personal rights and status ; *secondly*, as it concerns property, including of course the general nature and the various kinds of property, the different modes of acquiring it, and herein the Law of Contracts, and the Law of Succession, whether testamentary or *ab-intesto* ; *thirdly*, as it concerns the sanction of rights, or the remedies for wrongs, and herein the general principles of procedure, the Law of Evidence, and the Criminal Law."

The Sub-Committee also propose, "that there should be an examination for Honors, in which separate papers should be set on the following subjects :—

On the Law as administered by the Courts of the East India Company, including Hindoo and Mahomedan law, and the law of immoveable property in the Mofussil.

On the Law as administered by the Supreme Courts, including those parts of the Hindoo and Mahomedan law there administered and the English law of real property.

On Mercantile Law.

On Roman Civil Law, International Law, and the conflict of Laws."

The Sub-Committee of Civil Engineering "concur with Lord Elphinstone in thinking that the degree of B. A. should be enforced from all candidates for the professional degree in Civil Engineering; but in order to permit students, who intend hereafter to adopt the profession of an Engineer, to acquire at an early period some special acquaintance with their profession, we recommend that the Civil Engineering Colleges (if their Rules and Course of Study will admit of it) be so affiliated to the University, that all or part of the four years' study required for the B. A. degree may be passed in one of those Colleges.

One degree will be given in Civil Engineering, and every one who passes a successful examination, and obtains the degree, shall be called "Master of Civil Engineering" ("M. C. E.")

An examination for this degree shall be held annually, in the month of March.

No candidate shall be admitted to examination for this degree until he has obtained the degree of B. A. in one or other of the Indian or European Universities, and until he produce Certificates of having passed four subsequent years in the study and practice of the profession. Two of the four years must be passed in actual professional practice under an Engineer in charge of works.

The examination shall be conducted entirely by means of printed papers. It shall be sufficient to test the candidate's knowledge of

MATHEMATICS.	{ Spherical Trigonometry, as applied to Geodesy. Composition and Resolution of Forces. Equilibrium of Arches. Strength and Stress of Material.
NATURAL PHILOSOPHY.	{ Steam, its power, properties, and various applications. Fuel of various kinds, estimation of calorific power, electricity, and the various appliances for making it economically useful. Meteorology, Physical Geography, } especially of India. Chemistry, as applicable to cements, conditions and effects of fermentation, causes of decay, and preservatory processes. Geology, Mineralogy, } The nature of soils and earths, the selection of building and road materials. Botany, vegetable products, timber, fibres, oils. Theory of Rivers.
ARCHITECTURE.	{ The Classic orders and their parts, their application, principles of composition. Styles, { Peculiarities of different styles, and their modes of adoption.
PRACTICAL SCIENCE.	{ Drawing in all its branches, geometrical, perspective, and isometrical. Hydrography. Mechanism and Mill-work. Animal power. Various Mechanical Arts, viz. carpentry, building, smith-work, iron-founding, and forging. Preparation of material.

PRACTICAL SCIENCE.	{	Brick-making.
		Lime-burning.
		Pottery.
		Modelling.
		Timber-Cutting.
		Artificial Foundations.

The examiners shall place in a class by themselves such of the passed candidates as they think should be allowed to try for Honors, and the remainder of the passed candidates will form a second class. Both classes will be arranged in alphabetical order.

HONORS.

The examination for Honors, to be held one month after the general examination, will test a higher degree of attainments in any of the branches of Science above enumerated, at the option of the candidates. 'Those entitled to Honors shall be arranged in three classes and in order of merits.'

CANDIDATES for the Degree of Licentiate in Medicine and Surgery shall be required :—

"1. To have been engaged during five years in their professional studies at a School of Medicine.

2. To have passed the entrance examination of the Faculty of Arts, of the University of Calcutta, previous to commencing the study of Medicine recognised by the University.

3. To pass two examinations.

The FIRST EXAMINATION shall take place once a year and commence in the third week of March.

No candidate shall be admitted to this examination unless he have produced certificates to the following effect :—

1. Of having completed his eighteenth year.

2. Of having been engaged in Medical Studies for at least two Academic years.

3. Of having attended Courses of Lectures on the following subjects:

DESCRIPTIVE AND SURGICAL ANATOMY, .. *Two Courses.*

CHEMISTRY, ... *Two Courses.*

BOTANY, ... *One Course.*

MATERIA MEDICA, ... *One Course.*

4. Of having dissected during two winter terms, and of having completed at least twelve dissections during each of those terms.

These Certificates shall be transmitted to the Registrar at least fourteen days before the examination begins.

Candidates shall be examined in the following subjects :—

DESCRIPTIVE AND SURGICAL ANATOMY.

CHEMISTRY.

BOTANY.

MATERIA MEDICA AND PHARMACY.

The examinations in these subjects shall be written, oral, and practical.

The days and hours of the examinations shall be publicly notified at least one fortnight before they are held. At the end of one week from the day of the last examination, the Examiners shall arrange the successful candidates in two divisions, the first to be arranged in order of merit, the second in alphabetical order.

If in the opinion of the Examiners, sufficient merit be evinced, the candidate who shall distinguish himself the most in Descriptive and Surgical Anatomy, the candidate who shall distinguish himself the most in Chemistry, the candidate who shall distinguish himself the most in Materia Medica and Pharmaceutical Chemistry, and the candidate who shall distinguish himself the most in Botany, shall each receive a Scholarship of Sixteen Rupees a month for the next three years.

No single candidate shall hold more than one Scholarship at the same time.

Under the same circumstances, the first and second candidate in each of the preceding subjects shall each receive a Microscope of the value of One Hundred Rupees.

Under the same circumstances, the candidate who shall distinguish himself the most in Structural and Physiological Botany shall receive a similar Prize.

The SECOND EXAMINATION shall take place once a year, and commence in the third week of March.

No candidate shall be admitted to this examination within three years of the time of his passing the FIRST EXAMINATION, nor unless he have produced Certificates to the following effect:—

1. Of having passed the FIRST EXAMINATION.
2. Of having subsequently to having passed the FIRST EXAMINATION attended Lectures on:—

COMPARATIVE ANATOMY, ...	One Course.
GENERAL ANATOMY AND PHYSIOLOGY, ...	Two Courses.
MEDICINE (<i>including</i> HYGIENE) AND GENERAL PATHOLOGY, ...	Two Courses.
SURGERY, ...	Two Courses.
DISEASES OF THE EYE, ...	One Course of six months.
MIDWIFERY, ...	Two Courses.
MEDICAL JURISPRUDENCE, ...	One Course.

Of having attended a course of Practical Chemistry, comprehending practical exercises in conducting the more important processes of General and Pharmaceutical Chemistry ; in employing tests for discovering the adulteration of articles of the Materia Medica and the presence and nature of Poisons ; and in

the examination of mineral waters, animal secretions, urinary deposits, calculi, &c.

4. Of having attended to Practical Pharmacy for at least three months, producing a certificate of having acquired a practical knowledge of the preparations and compounding of Medicines.

5. Of having subsequently to having passed the FIRST EXAMINATION dissected during two winter terms, and of having performed operations on the dead subject during the last or fifth winter term,—the Certificate of the latter to specify the number and nature of the operations so performed.

6. Of having conducted at least five labours. Certificates on this subject will be received from any legally-qualified Practitioner in Medicine.

7. Of having attended the Surgical Practice of a recognised Hospital or Hospitals during twenty-four months and Lectures on Clinical Surgery during such attendance.

8. Of having attended the Medical Practice of a recognised Hospital or Hospitals during twenty-four months, and Lectures on Clinical Medicine during such attendance.

The course of Clinical Instruction to extend from 15th June to 15th March, one Lecture to be given twice a week, and Bed-side Instruction on the intervening days.

9. Of having attended the practice of an Eye Infirmary during six months.

The candidate shall produce reports of six Medical and of six Surgical cases, drawn up and written by himself during his period of service as Clinical Clerk and Dresser.

The said cases to be duly authenticated by the Professors of Medicine and Surgery respectively.

The candidate shall also produce a Certificate of general character and conduct from a Teacher, as far as the Teacher's opportunity of knowledge has extended.

These Certificates shall be transmitted to the Registrar at least fourteen days before the examination begins.

Candidates shall be examined in the following subjects :—

PHYSIOLOGY.

The papers in Physiology shall include questions in Comparative Anatomy.

GENERAL PATHOLOGY, GENERAL THERAPEUTICS, HYGIENE.

SURGERY (*including DISEASES OF THE EYE*).

MEDICINE.

MIDWIFERY.

MEDICAL JURISPRUDENCE.

The examinations shall be written, oral, and practical.

The examinations shall be conducted on days and at hours to be notified, at least one fortnight before their commencement.

The Practical (Clinical) Examination in Medicine and Sur-

gery shall be conducted in the Wards of a Hospital, by the Examiners of those branches.

In Medicine and Surgery, each candidate shall be required to examine, diagnose, and treat six cases of acute or chronic disease, to be selected by the Examiners; to draw up careful histories of these cases, and to perform and report in detail Necroscopical Examinations, should any of the selected cases end fatally. Should none so terminate, the *post-mortem* examination of any other cases that may have died in Hospital shall be performed and reported on by the candidates.

The candidates shall in addition perform such of the minor operations of Surgery as may be required in the Out-door Dispensary of the Hospital at the time of the examination, and as the Examiners may select.

They shall also each perform three capital operations upon the dead subject, after detailing to the Examiners the Pathological conditions in which such operations are necessary, the different modes of operation adopted, and their reasons for preferring any particular mode of procedure.

They shall also apply apparatus for great surgical injuries, and explain the objects to be attained by them, as well as the best manner of effecting those objects.

They shall also, in the Medical Wards, examine morbid products chemically, and by the aid of the Microscope, in the presence of the Examiners, demonstrating the results obtained.

On Monday, in the week following the conclusion of the Clinical examination, the Examiners shall arrange in two divisions, in alphabetical order, such of the candidates as have passed, and a Certificate signed by the Chancellor, under the Seal of the University, shall be delivered to each candidate.

Such candidates only, as in the opinion of the Examiners are admissible to the examination for Honors, shall be placed in the First Division.

Any candidate who has been placed in the First Division at the SECOND EXAMINATION may be examined for Honors in any, or all of the following subjects :—

PHYSIOLOGY AND COMPARATIVE ANATOMY.

Candidates may illustrate their answers by sketching the parts they describe.

SURGERY.

MEDICINE.

MIDWIFERY.

MEDICAL JURISPRUDENCE.

The examinations shall take place in the week following the completion of the SECOND EXAMINATION. They shall be conducted by means of printed papers and practical tests, and Examiners

shall not be precluded from putting *via voce* questions upon the written answers of the candidates, when they appear to require explanation.

The examinations shall be conducted in such order as will be made known annually by the Senate of the University.

In determining the relative position of candidates, the Examiners shall have regard to the proficiency evinced by the candidates, in the same subjects, at the Pass Examination.

Candidates who pass the examination, and acquit themselves to the satisfaction of the Examiners, shall be arranged according to the several subjects and according to their proficiency in each; and candidates shall be bracketed together, unless the Examiners are of opinion that there is a clear difference between them.

If, in the opinion of the Examiners, sufficient merit be evinced, the candidate who shall distinguish himself the most in Physiology and Comparative Anatomy, the candidate who shall distinguish himself the most in Surgery, and the candidate who shall distinguish himself the most in Medicine, shall each receive a Scholarship of Forty Rupees per mensem for the next two years, with the style of UNIVERSITY MEDICAL SCHOLAR. Only one such Scholarship shall be tenable by the same candidate.

Under the same circumstances, the first and second candidates in Physiology and Medicine shall each receive a Microscope of the value of One hundred Rupees. In the event of the successful candidate having obtained a Prize Microscope at the First Honor Examination, he shall obtain a Prize of Books of the same value. The first candidate in Surgery shall receive a Prize of Surgical Instruments of the value of One Hundred Rupees.

Under the same circumstances, the candidate who shall distinguish himself the most in Midwifery shall receive a case of Midwifery Instruments, and the candidate who shall stand first in Medical Jurisprudence shall receive a Toxicological Cabinet of the value of Hundred Rupees.

The examination for the Degree of Doctor of Medicine shall take place once a year and commence on the first Monday in December.

No candidate shall be admitted to this examination, unless he have produced certificates to the following effect:—

Of having attained the Degree of Bachelor of Arts in this or any other University and of having been engaged two years in the study or practice of his profession subsequent to his having taken the Degree of Licentiate in Medicine and Surgery in this University, or a Degree in Medicine or in Surgery at a University, the Degrees granted by which are recognised by the Senate of this University.

Certificates of Moral character, signed by two persons of respectability.

The examinations shall be conducted by means of printed papers and *viva voce* interrogation.

Candidates shall be examined in the following subject :—

MEDICINE, including PRACTICE OF PHYSIC, SURGERY, AND MIDWIFERY.

The examination shall be conducted in such order as will be communicated annually by the Registrar of the University.

On Monday morning in the following week, the Examiners shall arrange in two divisions, each in alphabetical order, such of the candidates as have passed, and a Certificate under the Seal of the University, and signed by the Chancellor, shall be delivered to each candidate.

CANDIDATES who completed their Medical Studies in or before March, 1856, shall be allowed to present themselves for the Degree of Licentiate in Medicine and Surgery and of Doctor of Medicine on producing the Certificates and other documents specified in the foregoing Regulations.

The first Pass or Junior Diploma Certificate of all students of the Calcutta Medical College, who have obtained that Certificate prior to the promulgation of these Regulations, shall be accepted as equivalent to the First Examination Certificate of this University.

Graduates of the Medical College, who may wish to obtain the Degree of Doctor of Medicine, shall produce the Diploma of Graduate of Medicine of the Medical College of Calcutta, and afford proof of having been engaged for five years in the practice of their profession.

The examinations shall be the same as those before specified."

REPORT ON THE COLLECTORATE OF AHMEDABAD.

Bombay Records, No. V.

"THE Ahmedabad Collectorate is divided into seven purgunnas, viz. Duskrohie Ahmedabad, Duskrohie Jetulpoor, Puranteje, Dholka, Veerungaum, Dhundooka, and Gogo, whose area, amounts to 47,94,376 beegas, equal to 28,17,631 acres. These purgunnas, with the exception of Dhundooka and Gogo, have undergone a revenue survey measurement; the khalsa or Government villages in detail, and the mehwassee and talookdaree villages as regards their boundaries." Mr Fawcett reports that the population of this Collectorate is 5,97,886; that the number

of villages is 1027 ; that the city of Ahmedabad contains a population of 91,224, and has an area of 2·24 square miles, the reporter then, having mentioned that each of the above named seven purgunnas is a Mamlutdar's charge, details the sub-divisions of the purgunnas, their systems of police and their improvement under the British rule and proceeds. The net land revenue amounts to about Rs. 9,68,287.

The hilly tracts of the Meywar province terminate, on the extreme North of the Collectorate, from thence the country, towards the South-East and South-West, undulates ; these undulations gradually subsiding into a flat open country as we proceed South ; the plain is terminated at the extreme South by the hills, probably 700 feet high, of the Gogo purgunna running North and South. There are two principal varieties of soil in this Collectorate, the black soil and the "goraroo," from "gora" white, this with the assistance of manure and irrigation is very fertile ; however, the most fertile soil is that called bhata, a deposit of the Saburmuttee, it is the more valuable because water being found at the depth of a few feet it is easily irrigated.*

The variations of temperature at different seasons are great, the cold feels more penetrating than a hard frost in England, whilst the rains are hot and close. The monsoon is generally very light in Ahmedabad.†

The productions are wheat, cotton, bajree, joowar, gram, sugar-cane and rice. Guzerat is famous for its breed of cattle, horses are bred in this Collectorate ; sheep and goats are scarce. The reporter describes with accompanying sketches, the plough, the sowing machine, the sumar and the rampru or hatheea, which is a weeding plough or hoe, with the carts in use in the various districts. The tenures differ little from those prevalent in the Bombay Presidency. The report gives a specimen of the various descriptions of the assessment now prevailing these however it is intended to supersede by an annual rate per beega according to the capability of the soil.

Statement of prices of grain in the city of Ahmedabad for the month of March in the years 1838 and 1848 shewing the quantity sold for one Company's Rupee :—

	1838.		1848.	
	Mds.	Srs.	Mds.	Srs.
Bajree, 1st sort, ...	0	24	0	39
—, 2nd sort, ...	0	27	1	0
Rice, 1st sort (kumode), ...	0	21	0	25
—, 2nd sort (elachee), ...	0	25	0	30

* There is accompanying the report a sketch map exhibiting the locality of the descriptions of soil.

† The register of the thermometer for the last eleven years is given.

			1838.		1848.	
			Mds.	Srs.	Mds.	Srs.
Rice, 3rd sort (sootursal),	..	..	0	28	0	33
—, 4th sort (sathee),	...	...	0	29	1	5
Wheat, irrigated,	...	...	0	24	0	28
—, chosna, unirrigated,	...	...	0	22	0	26
Mutt,...	...	..	0	34	1	10
Mug, ...	...	..	0	28	1	1
Ureed,...	..	..	0	27	1	1
Gram, ...	..	..	0	30	0	31
Dholl, ..	..	..	0	27	0	22
Joowar, ..	..	..	0	34	1	8

For a beega of uwul land sown with bajree and kuthol the out-turn is Re. 1-14 on an expense of Rs. 8-8, for the doyum soil it is Rs. 2-4 on an expense of Rs. 10-12, and for the soyum soil the expense being 5 Rs. there is a balance of Re. 1-14. There is no navigable river under this Collectorate, neither any good shelter for vessels between Gogo and Bombay! The vessels employed in the ports are botellas and prows*. The Null is the only lake of large extent it is in most places shallow and muddy, "and abounding with thick impenetrable masses of reed, and is always covered with flights of water-fowls. It is bounded by no perceptible bank; and the country that borders on it is a dreary desolate flat, covered with vegetation of the rankest and most unwholesome nature." One other lake called the Boke is worthy of mention. "There are no canals of any sort in this district. All inland traffic is carried on by carts, camels, bullocks, and asses." Numerous old tanks exist throughout the country many of them far away from villages; the construction of wells is a subject which has frequently drawn the attention of Government, "and every encouragement has been held out to the ryots to build new wells and to repair the old. Numerous wells are to be found in the bounds of almost every village, but a great number have fallen in. The interior works in many are found entire, and in years of famine many are re-opened, and the lands in the neighbourhood irrigated." Irrigation is carried on to great extent in raising the superior crops of sugar-cane, plantains, barley, &c. Wells are most generally in use for irrigation, the tank irrigation being confined to the early part of the season for bringing the rice crops to maturity, the water for the purpose of irrigation is obtained from the rivers Saburmuttee and Kharee either by a water-course; a dekoree merely a rude frame on which the water bag is worked; or by an arrangement called the jeela.† Gogo is the only place which

* Sketch given.

† Sketch of the jeela given.

comes under the denomination of a harbour. "The harbour of Gogo affords good anchorage, the holding ground being good ; and the locality is protected from southerly winds by the island of Perim, and the reefs extending to the shore on that side of the Gulf. It is protected from northerly winds by sand-banks and the shore is not dangerous, being soft ground, and very strong easterly winds not often occurring." Perim island bears from "the north point of Broach WSW $\frac{1}{4}$ W., its distance is about 13 miles ; and from the western shore it is distant about 4 miles. From Gogo it bears SE., and is distant about 8 miles. Dangerous reefs of rocks surround it, and both the ebb and flood tide set very strong in between it and the mainland. It is consequently of the utmost importance that vessels should keep out of their influence, as they sweep them amongst the dangerous shoals lying between the island and the main." To warn vessels of their danger a light-house has been erected.* "The island of Perim has obtained some notoriety from the number of fossil bones found there : some are of animals of very large size, probably the mastodon ; there are also bones of animals still extant, and common ; for instance those of hogs, alligators, camels, and turtle. The place where these curiosities are found is far below high-water mark, on the reef at the south side of the island. The place is approachable only at low water. The village on the island consists merely of a few huts for twelve families, who cultivate about 100 beegas with bajree. In the hot weather, they generally leave the island, and live in Gogo till the season for cultivation arrives. Good stones for grinding grain are found here, and the proprietors receive Rs. 5 per 100 from the people who dig them out. On the coast opposite, in the neighbourhood of Gogo, are found red-ochre and fuller's earth." The report gives an alphabetical list by purgunnas of all the villages in the Collectorate with particulars relating to their size, value, tenure, &c.

The chief city in the Ahmedabad Collectorate is Ahmedabad, it is situated in N. latitude $23^{\circ} 1'$ and E. longitude, $72^{\circ} 42'$. There are many fine mosques and tombs still standing, it is surrounded with a good wall averaging 15 feet in height and 4 or 5 feet in thickness with bastions and gateways, it is not a fortified town, the wall being merely intended as a defence against robbers. Since 1843 when the old wall was repaired, a municipal fund has been established, by this fund which was originally formed for the repairs of the wall, roads are made, watered, and lighted at night ; arrangements are in hand for the construction of an aqueduct from the river. A town clock is about to be erected, and an establishment

* Sketch given.

of fine engines maintained. Dholka is situated 22 miles South-West by South of Ahmedabad, it is an open town, has several fine stone built tanks and mosques of the time of the Mahomedan dynasty.

The town of Veerungaum, situated 38 miles West by North of Ahmedabad, stands upon the banks of the Ruun in the midst of an extensive bare plain ; it is encompassed by a brick wall upon a stone foundation, including a circumference of 2 miles and one furlong, flanked with the usual proportion of towers. For the repairs and preservation of this wall the town taxes called gullalputtee have been set aside, the wall now in a good state is sufficient to repel the attacks of any banditti, the town commands the entrance into Kattywar and is the head quarters of a Mamlutdar. The town of Gogo is walled except upon the sea face, voluntary municipal collections are made for the repairs of the wall ; roads are in course of construction in the town, other improvements are likely soon to be carried into effect.

The town of Dholera has only lately become of importance, from a mere village it now numbers 6,807 inhabitants. It labours under a great natural disadvantage, the want of good water, it is now dependent upon one tank the water of which is far from good, a municipal fund by name dhurum tulao has been raised having for its object the keeping in repair the tanks on the roads. The town of Bhornuggur, though inconsiderable in a Military point of view is a place of considerable trade. The town of Patree is walled, has a fort of considerable strength though somewhat delapidated, in this fort lives the Thakoor who enjoys the revenue of twelve villages.

The majority of the inhabitants of Ahmedabad, are cultivators ; the language spoken is the Guzerattee dialect, but in the towns Urdu is generally understood ; the condition of the people is much improved since the time of the late Mahratta government, the native Hindoo population is undoubtedly in better circumstances than the Mahomedans ; weaving is very little resorted to as an employment, it being far cheaper to buy English yarn or long cloth than the thread and coarse cloth of the country. The expense for a boy's education is commonly 4 Rs. which payment is spread over the space of two years, the boy however reads no books nor does the school contain one. The reporter gives the number of schools with the course of study. There are many private charitable institutions in the Collectorate under the name of sudawarut. "In Ahmedabad there is an institution called Sultan Ahmed's Lungur Khana, the origin of which is not exactly known. The Government continue to pay the amount of Rs. 2,894-7-3 per annum, which it was found to be in enjoyment of at the British accession. It is continued to

objects of charity in succession as the pension lapses. In 1846, the number of persons brought to trial, for various offences either against the person or against property, was 3,252, the number convicted being 1,776 ; whereas in 1848, the number brought to trial was 3,906 number, convicted 2,172.

The whole annual cost of the police establishment, in the Collectorate of Ahmedabad, of all descriptions is Rs. 2,74,113-12-9.

The Officers exercising Penal Powers in the Zillah are :—

- 1 Magistrate.
- 2 Assistant Magistrates, Civil Service, one with full powers.
- 1 Magistrate, Military Officer.
- 4 Assistant Magistrates, ditto.
- 1 Ditto ditto Medical Officer.
- 7 Mamludars. (5.)
- 3 Joint Police Officers, Kotwal, and Foujdars.
- 5 Mahalkurrees or Thanadars.
- 2 Landholders.
- 962 Village Officers.

The report gives a general statement of revenue and police statistics, the strength of the Kolec police corps, and of the Gueserat Irregular Horse.

The manufacture of silk which is principally imported from Bombay is still carried on though its extent of late years has much fallen off. To the report are attached sketches of the Churka, the Pinjun and the Mallet instruments used to clean cloth. The price of cotton with the seed was at Surkey, in January, 1849, Re. 1-14-0 per Indian maund, cleaned cotton was Re. 7 per Indian maund. About 800 people are employed in the manufacture of paper which is made chiefly from old gunny bags and taut (a very coarse description of sackcloth), in making paper no machine is employed by the workmen all being made by hand, there are five different sorts of paper manufactured, the workmen receiving for the coarsest kind Re. 1-10 per 100 quires and for the best 5 Rs.

The capitalists of Ahmedabad speculate largely in opium, in this mode alone upwards of 50 lakhs are employed at Ahmedabad, about five lakhs are employed in the export of cotton. At the port of Gogo from the tables attached to this report we learn that in 1833-34 there was shipped for exportation opium to the value of 3,17,000 Rs. that in 1846-47, at the same port there was shipped opium to the amount of 15,05,000 ; the value of the Cashmere shawls shipped to Bombay in the years 1839-40 was 1,45,972 Rs. whereas in 1846-47 the declared value was 10,24,995 Rs. In Ahmedabad the Company's rupee of 180 grains troy is the unit of a tola, 80 such tolas being equal to one seer, a table both of weights and measures accompanies the re-

port, however though the Sicca Rupee is no longer the standard of weight yet still it is the coin which is most in circulation amongst traders. The banking operations are such as are common in most parts of Bombay, money is advanced upon security, the interest being proportional to the risk. The interest on money deposited with native bankers is 3 per cent. The principal impediments to inland travelling are the monsoon and the rivers, traffic is usually suspended from the middle of June until October. A district dawk was established in 1840 one branch going from Ahmedabad through Dholka, Dholera and Bhownuggur to Gogo with a smaller branch from Dholera to Dhundooka and Veerungaama, small lines exist between Hursale and Puranteje, Morassa and Byes. The principal source of revenue is the land, the whole net revenue derived from every source, is Rs. 12,98,476.

A SHORT ACCOUNT OF THE CHOOTA TRIBE.

Bombay Records, No. V.

THE tribe of Choctas claims descent from the Soomrahs, their territory in which few traces of antiquity are to be found is situated on both banks of the Hubb, being bordered on the North by the Brahui tribes of Minguls and Khedranecs, on the East by the Keertur, Mehee and Mol hills, on the West by the Pubb hills, on the South by the Vehrab on the right bank of the Hubb.* The highest ranges of hills are those of Andharo, and Lakhan, their height being 3800 feet, besides the above ranges are the Pubb, and Keertur, the Bhedoor and Koodoo, both these last are distinguished by their broken and steep sides, there are several minor hills all equally barren and destitute of vegetation. It is to be remarked that between the Gaj Luk and the Southern extremity of Keertur are only four passes namely those of Rohil, Phoosee, Gurho and Kootch. By the Choctas essentially nomadic tribes cultivation is rarely attempted ; their appearance is any thing but favourable as a reference to the sketches given in the report will shew ; their habitations corresponding with their persons are of the most rude and primitive form† being uniformly constructed of matting or coarse kumlees drawn over a frame work of sticks, and are either rounded in form like the tilt of a waggon or are oblong. The females are generally occupied in attending to

* A sketch map is given.

† Sketch given.

various domestic matters and in spinning camels' hair or goats' hair or the wool of the doomba.

The character borne by the Chootas, amongst their not over fastidious neighbours, with whom they are constantly engaged in warfare is of the very worst description, their present Chief is Oomed Ali, his income derived from a toll levied on kafilahs passing from Khelat to Kandahar is, during the winter months about 300 Rs. there are numerous traces of bunding, the principal bund is situated near the Bhaloor stream, it is not known by whom this bund was constructed.

REPORT ON THE PROVINCE OF KATTYWAR.

Bombay Records, No. XXXVII.

IN A. D. 1807, Col. Walker estimated the population of Kattywar at 19,75,900, exclusive of Babriawar, Jaffrabad and Okhamundul. In 1831, Mr. Blane's census not including the two last districts gave an estimate of 17,59,277. The last census by Capt. (now Lieut. Col.) Jacob gave, for the whole peninsula, under the care of the Political Agent, a population of 14,75,685. This he considers in his Report, as near the truth as our imperfect means permit. The peninsula contains an area of about 22,000 square miles deducting the eastern portion which has fallen under the Ahmedabad Collectorate, the district under the Political Agent contains 20,000 square miles, which gives an average of a fraction under 74 souls per square mile. Only four of the old races namely, the Jetwas, the Choorasamas, the Solunkees, and the Walas, who consider themselves to be aborigines, now exist as proprietors of the soil. The report gives a brief sketch of the past history of the peninsula and proceeds. The peninsula is divided into ten Prants of very unequal size, one Prant containing about 53 villages whilst another contains 942. The surface* of the country is generally undulating with low, irregular ranges of hills. The high land commencing in the N. W. runs easterly to Surdhar, near which it meets a range having Choteela for its highest point, running in a southerly direction and circling eastward beyond Jusdhuu. From this high land proceed all the rivers disembogueing in the Gulfs of Kutch, of Cambay and into the Runn. The mountains most important are the Geernar clump. A bold mass of granite rises almost perpendicularly several hundred feet, intersected with irregular lamina of quartz. Its highest peak is 3500 feet above

* Map given in the Report.

the level of the sea. The Geernar clump must not be confounded with the Geer range. The eastern or the Geernar mountain contains a rock called the Bheroo Jup, from whence until lately devotees threw themselves into the fearful abyss, as a religious act of suicide. The celebrated rock in which the edicts of Asoka, &c. are traced is at the entrance of the valley which leads to the base of the mountain, from the Joonaghur side. The Burda hills near Porebundur are a circular cluster about thirty miles round, the highest point in the north where are the ruins of Goomlee is nearly 2000 feet above the level of the sea. Bamboos grow plentifully on the summit. The Geer, a remarkable formation, consists of ridges and hills covered with forest trees and jungle. Captain Jacob has marched 20 miles within it, without finding room to pitch a Bechova. The Geer* terminates near Dedan in the south-east towards which it narrows. The hills which again rise between Wudal and the Shetroonjee river and sometimes, called the Lesser Geer, are not so called by the natives, they are not so high, much narrower, less wooded, more facile of transit. From Koriar, near Mendurra to Dedan the "distance is upwards of fifty miles in a straight line. From Sursace in the north, to Ghantwur south, it is near thirty miles. This extensive arena is divided by two main vallies running north and south, into which, from numerous hills and hillocks, pour a vast number of streamlets that create the Singoora and Rawul rivers, which enter the sea near Koreener and Sunikra. The main lines of communication are through these vallies. The Geer has three other roads through it, but no cross communication save by difficult footpaths. The Geer range, can scarcely be said to have any population. During half the year, i. e. from the commencement of the monsoon to December, it is dangerous to reside in, owing to the malaria produced by its extensive jungle, and the poisonous quality of its waters. The poor villagers, who are tempted to live on its outskirts, by the favourable terms on which land is there given to them, present a melancholy spectacle in their yellow, cadaverous looks. The Seedee race is the only one which, as on the pestilential coast of Africa, seems exempt from the noxious climate of this district. After the unhealthy months are over, droves of cattle frequent the Geer. Even in the dry season few can drink of its water for many days together without affections of the stomach, and otherwise suffering. The forest trees are chiefly of the smaller kind, but teak is abundant." East of the Shetroonjee rises the Palitana mountain. The Jain temples upon the top of this hill are both beautiful and costly. The transport of every single stone costs a Koree, rather less than a third of a Rupee. The province abounds in rivers, it

* Sketch of Vejulkote in the Geer given.

is difficult to make a day's march without crossing several. None however except the Bhadur, which is to a certain extent navigable by boats of from ten to fifteen khundeas in the monsoon, are navigable. This in the dry season presents only deep pools with a mere trickling streamlet to connect them. The rivers therefore are mere mountain torrents, yet to see the width of many, and the volume of water rolling past, during the monsoon, the stranger would imagine them of much more importance than they really are. Two rivers, the Kharee and Kharndee which enter the Shetroonjee near Krankuch, contain dangerous quicksands. "One of the striking geographical features of this peninsula are the tracts of country called Runns. That of Kutch, called the Great Runn, completes with the Gulf its northern boundary. The Small Runn commences near the other in the N. E., continuing to the Gulf of Cambay, with which the eastern limits are completed; and, in the N. W. a narrow Runn separates the district of Okhamundul from the rest of the peninsula, except by the connecting link of a narrow bank of sand at Mudhe." There is no English word exactly corresponding to Runn. It is neither a swamp, fen, desert or salt marsh, but a compound of all. In some parts of the Small Runn salt is collected by the villagers, in other parts the bulbous roots of a plant called Bheer abound, which in time of famine are dug up for food. A plant called Theg also grows here plentifully, its roots are bruised and a substance resembling small seed extracted therefrom which is eaten. The modern sub-divisions of the peninsula in their geographical order beginning from the N. W. are :—

I. The province of Okhamundul. This district was conquered from the piratical tribes who possessed it in A. D. 1816 and ceded to the Gackwar in the Supplemental Treaty, dated 6th Nov. 1817.

"II. *Hallar* comprises the northern part of the peninsula from Meeanee on the west coast to the junction of the Gulf with the Runn of Kutch. It is named after Jam Hala, an ancestor of that branch of the Jhareja tribe which conquered it: it now belongs to different families of this tribe, whose name the practice of infanticide has brought rather prominently to notice. The western part of Hallar is termed Bararee, which is the level portion between the hills, the sea, the Okhamundul Runn, and the Gulf of Kutch. Nowanuggur, the capital of the Jam, and the most populous city in Soorashtra, was founded by Jam Rawul, in A. D. 1540. Hallar is the largest and most populous province of the peninsula.

III. *Muchoo Kanta* is a narrow slip of territory, on either bank of the Muchoo river, belonging to the Morvee and Mallia Chiefs, who are more recently descended from the Kutch family

than their brethren of Hallar. Mallia is of the Morvee Bhayad. The present Morvee Chief is the eighth in descent from Rao Dhunjee, whose son, Ruvajee, obtained Morvee in A. D. 1677, but was murdered in A. D. 1698 by the son of a younger brother, since which period the younger branch has been seated on the Kutch Guddee, the elder retaining Muchoo Kanta and part of Wagur.

IV. *Jhalawar*, or the country of the Jhalas, unites with Hallar to the southward of Muchoo Kanta, and fills up the rest of the peninsula to its NE. angle, where the Kutch Rann bends to the north; eastward it reaches nearly to the head of the Cambay Gulf. This division includes the petty State of Moolee, owned by Purmar Rajpoots, and the Mussulman one of Bujana, occupied by Juts, whence that district is called Nhanee or Lesser Jutwar. Beyond the NE. angle of the peninsula, though politically included in this division, are the Mahomedan States of Dussara and Wunod, the Kolee one of Jhinjoowara and part of Patree which is under a Koonbee family. These four are in the geographical division of Wudheear, adjoining that of Chowal. The Jhalas are supposed to have been located in the peninsula since the eighth century. The districts bordering on the Jhalawar Rann are named Null Kanta, and Nhanee or the Lesser Bhal. The southern portion of Jhalawar is termed the Burwala Purgana, from the town of that name, and is now under the Ahmedabad Collectorate.

V. *Gohelwar*, or the Province of the Gohels, fills up the remainder of the eastern frontier. The Gohel Rajpoots were driven out of Marwar by the Rahtors in the end of the twelfth century, and acquired their footing in the peninsula chiefly by intermarriage with the Choorasama family of Joonaghur. The Raja of Bhaonuggur, who has dropped the title of Gohel for that of Rawul, is descended from the eldest son of Sejuk, and is the principal Chief in Gohelwar. Bhaonuggur was founded by Bhao Singhjee, in A. D. 1743, but having fallen under the Ahmedabad Collectorate in virtue of our conquests from the Peshwa, the situation of the Thakoor is less independent than that of the other Chiefs of the peninsula, who have their capitals removed from that jurisdiction.

VI. The small district of *Oond Surweya* is imbedded in Gohelwar, it being merely the strip of land on the banks of the Shetronjee river northward of the Wullak hills. Oond implies low, the district being confined to the level country on either side the river: it contains only thirty-three villages, of which six have fallen under Bhaonuggur." It is interesting as containing the remnants of the Rajpoot tribe which formerly ruled in the peninsula.

" VII. *Babriawar* or the Country of the Babrias.—This province adjoins Wullak, having the Jholapoorree and Malun rivers for its boundaries east and west, and reaching from the sea to the Geer hills. The proprietors of land are Babrias (commonly, though erroneously, called Babria Kattys) and Aheers. The Babrias class themselves under seventy-two tribes." The port of Jaffrabad in the centre of Babriawar is one of the best in the peninsula, and affords shelter for shipping throughout the monsoon.

" VIII. *Soruth*.—This province adjoins Babriawar to the west, reaching along the sea coast to Madoopoor, and inland to the Bhadur river, where it meets Hallar, and with it encloses the sea-board district of Burda, and completes the circle that constitutes Kattywar a central province. Soruth contains some minor geographical divisions, viz. the Bhadur and Nolee Kantas; the Geer—the Larger and Lesser Geer; the Larger and Lesser Nagher." The report gives the history of this province.

IX. Burda is a narrow strip of land between Madoopoor and Nurvee, after passing the Bhadur it does not reach in land 20 miles at the widest point. The port of Porebunder, is the best on the west coast though by a bar of sand at its mouth somewhat obstructed.

" X. *Kattywar*.—This large central province is named after the Katty proprietors of the soil, of whom the three chief tribes are the Wala, the Khachur, and the Khooman; these tribes, termed Shakhæet or noble, are sub-divided into twenty of the first, seven of the second, and ten of the third, in all thirty-seven: and there are ninety-three tribes of Ehwurutias, or ignoble. Kattywar is divided into five districts, viz. Punal in the north-east, Khooman in the south, and the three intermediate ones of Wussawar, Kharapat, and Alug Dhananee. The first is celebrated for its breed of horses, and is chiefly occupied by the Khachur tribe. The Kattys are evidently a Northern race; their stature, features, above all their blue and grey-coloured eyes, by no means unfrequent, give much probability to the idea that they are of Scythian descent, with which their habits in some degree correspond. The Sun is their chief deity; its symbol is drawn on every deed at the head of the list of living witnesses, with the words *Sree Sooruj Nee Shakk*."

The number of separate jurisdictions* was formerly 292 of which 80 have been absorbed, "chiefly by the Gaekwar's encroachments in Kattywar, but also by acquisition of territory on the part of the Jam of Nowanuggur, the Thakoor of Bhaonuggur, and the Chief of Jusdhun: the number now paying tribute to the British and Baroda Governments is 212. Some of these

* Statistical Tables are appended.

pay only to one, but many also to both." The British share of the tribute amounts to Rs. 7,14,660-13-4. The total revenue of the peninsula is 11,83,643-13-11. The above sum is about one-fifth of the annual rental which is estimated at about sixty lakhs of Rupees. The tribute presses on some States severely. The basis of the permanent settlement was to take things as they were, and to prevent their getting worse. Twelve States pay no tribute. There are now therefore 224 separate jurisdictions, but this number faintly portrays the real amount of existing sovereignties. The establishment of the various tribes in the peninsula was by the sword. Much however of their territory was gained by the weaker landlords writing over their Geeras to whomsoever they thought best able to protect them. With these exceptions the tenure on which all the Chiefs hold their possessions is that of absolute sovereignty. The Chiefs bequeath portions of land to their sons or to religious characters. Each plough pays a certain sum called Santhee Weera, generally a Santhee of land contains three Prajas, a Praja 30 Beegahs and each Beegah a square of 45 yards. The cultivators prefer taxes in kind. Two-fifths of the produce are realized by the cultivators, one-fifth is the expense of tillage, and one-fifth is tax paid to the Chief. The artisans and shopkeepers are taxed. The most striking tax is "wet" or service paid to the Chiefs without payment. The Chief is a despot but if he attempt too grossly to interfere with the rights of the ryots, they desert him. Of Civil and Criminal law the people have no idea. Each caste manages its affairs by Punchayets. Fines are almost the sole penalty. Capital punishment is rarely inflicted. Few of the Chiefs can read or write. In every town some small provision is made for schooling but wretchedly inadequate. Government pay two Pundits at Rajkot and about 50 pupils attend, but their parents withdraw them so soon as they have learnt the rudiments of arithmetic. The Braminical priesthood have little if any weight in the country, there are no colleges for their education. The Nagur community of Bramins is very powerful in the peninsula. The Meeanas from Kutch, who have obtained land at Mallia, a formidable race of plunderers, are now restrained by the Gaekwar. The people most likely to disturb the peace of the country are the Mukranees; all these, soldiers by profession are ready to commit any crime for money. Rajkot seems to have been selected for the residence of the British force and of the political Agents' establishment from its central situation, and from the abundance of forage in its vicinity. The Gaekwar's Contingent of Irregular Horse furnishes Thanas for the protection of the line of trade along the eastern frontier. The report after detailing the religious habits and customs of the Kattys enumerates

the best Bunders, of the peninsula from which traffic is usually carried on, which are. In the Gulf of Cutch, Jooria Sulaya, and Wuwania : on the west coast Porebunder and Bilawul, a good deal of cotton is exported from Mangrol though its port is little better than an open roadstead. On the South Diu, Jaffrabad and Mowa. In the Gulf of Cambay, Gogo, Bhaonugger and Dholera. The chief trade of the country, is with Bombay, the chief export is cotton. The imports, are bales of cloths and piece goods with various European manufactures, wood and cocoanuts from the Malabar Coast, ivory and spices with dates, rice and oxen. Iron is manufactured from native ore found in the Hallar and Burda to the extent of about 100 tons annually. Copper and gold are found. There are mineral springs. Cotton is the grand staple of the country, it is estimated that 2,67,606 India muns* are grown of which about half is exported. Wool has become of late years an article of export, its quality with the excellent pasturage of the country might repay a European speculator. Bajree is the chief article of food. Sugar-cane is grown all over the country. Goor is alone manufactured. The Kattywar breed of horses has long been celebrated in India. The breed has however deteriorated and will, unless preventive measures be taken, become comparatively worthless. There are cows, buffaloes and a small kind of camel. The animals found in Kattywar which are not found in other parts of India are lions and armadillos. One of the most striking peculiarities of the peninsula are rats. They appear at intervals in great myriads. A famine was caused by these creatures in the year 1814-15, it is still called Oondrio Sal or the Rat Year. The manufactures now existing are suitable only for the inhabitants. Linen seems unknown. The carpenters, blacksmiths and stonemasons are equal to any in India.

There are three mints in the country where silver is coined. The Dewan Shae Coree of Joonaghur, the Jam Shae of Nowanuggur and the Rana Shae of Porebunder. The art of painting is unknown. Printing and lithography have no existence. Good matchlocks, swords and daggers are manufactured.

There are no roads or canals in the country, the soil permits of good natural roads, and the drainage prevents even the black soil from interfering with the monsoon communication. "This peninsula contains in itself the elements of natural strength. Its geographical position and numerous ports point it out as the connecting link between Africa, Arabia, Persia, and the Indian continent : its soil is productive, especially Soruth and Kattywar. The Geer forests produce timber for building, and abundance of fuel. Iron might be worked to any extent, as the ore

* Vide Appendix.

abounds. The horses and cattle are of good description, and no country possesses greater facilities for internal communication ; but under the rule of semi-barbarian Chieftains, it may be termed a giant asleep. A languid circulation goes on sufficient to preserve existence, but otherwise there are no signs of life."

The Appendices have been summarized in the body of the report. "The connection between the Company's Government and the Chiefs of Kattywar commenced in the year 1807-8, when, in consequence of the inability of the Gaekwar administration to recover their revenue, and the state of anarchy and confusion to which the province had been reduced, the interference of the British Government became necessary as a matter of policy, and was desired by the Gaekwar, to enable him to realize his annual tribute." We concluded engagements with the Chiefs guaranteeing to the Gaekwar government the punctual payment of the revenues, we charged ourselves with the collection of the tribute and maintenance of the general peace of the country reserving our share of the revenues as successors of the Peshwa and securing to the Gaekwar Government their rights. The Gaekwar government promised, the punctual payment of the revenue, determined, to refrain from depredation and mutual aggression, to relinquish piracy and to discontinue the inhuman practice of female infanticide. The report after enumerating the ten Prants into which Kattywar is divided gives the principal features of every estate with the name of its Chief and exhibits in a tabular form miscellaneous information connected with Kattywar. Lieut. J. Macmurdo, in a memoir of the province, divides it into nine districts omitting the district of Oond Surweya, which he includes in Gohelwar and proceeds. Jhalawar derives its name from the Jhala Rajpoots who are its principal Zemindars, it is one vast flat with a slope towards the Runn. There is a want of wood ; of brush wood there is a good deal crowning a range of rising ground which appears to run in a North West direction from the Thau hills to the Runn with which it afterwards runs parallel as far west as Halvud. This range is never very broad, two miles at most, and is incapable of cultivation. The soil of Jhalawar is sandy with slips of rich black soil. The water is contained in wells and tanks, the wells are with few exceptions brackish in the months of April and May, and the tanks are generally dry in those months. There are a few rivers and these are salt with sandy banks. They are the Bhogawa, the Bambun and another which passes Drangdra, all these flow into the Runn. The roads lead on sandy ridges and are throughout the province good. The prin-

cipal town is Drangdra, the water of which is bad. The staple produce is wheat of which it sends great quantities to Guzerat. The horses on the river Bhogawa are adopted for native Cavalry. The cultivators of Jhalawar being chiefly Koonbees, the district is peaceable and orderly. The Northern parts of Kattywar are mountainous. The soil throughout is stony with a light red earth, and has little variation if we except those parts on the Bhadur river where the soil is rich. The stony soil is adapted for Bajree and Jowaree which are the staple produce. Kattywar has two large rivers both of which are named the Bhadur. They rise on two opposite sides of a hill not far from Jusdhun. The roads partaking of the soil, are stony but extremely good at all seasons. The chief town is Jetpoor situated on the Bhadur. This district yields little else than Bajree and Jowaree. The Kattys breed vast herds of cattle. Almost every village in the district has from two to four hundred goats and sheep with cows and buffaloes in proportion. The inhabitants are of those predatory habits common to all nomadic tribes. If not kept in strict awe they are inclined to plunder.

Gohelwar is so called from a caste of Rajpoots. It is a flat country with a great want of wood. The soil is not quite so rocky as that of Kattywar and is equally fertile in the same kinds of grain. The roads are hard and level, heavy rains alone obstruct a free passage. Bhownuggur, a sea-port, is the chief town. It is a great mart to Bombay. The inhabitants resemble the Kattys.

The name "Muchoo Kanta" implies the country on the bank of the river Muchoo. The soil is extremely rich and fertile producing vast crops of Jowaree. The principal town is Morvee. The country suffers deplorably from its want of inhabitants.

Hallar is the name of the tract stretching between the river Ajee and Kumballia. There are ranges of hills with extreme plains destitute of wood. The soil is various, that near the sea being of a rich black nature whilst that in land is light and gravelly. The country is remarkably well watered. Every village has a stream of excellent water. The rivers are the Ajee, the Ound and the Rungmuttee and Nagvee which unite. The roads are good though not much used. Nowanuggur is the capital, it is a sea-port, large, populous and flourishing. Hallar might afford supplies to a great extent, there are large flocks of sheep and goats. The natives are by no means troublesome. Soruth was the name by which the whole country was known to the Mahomedans, it is the tract lying in the neighbourhood of the Joanagur hills. It is one

flat fertile plain watered by the Bhadur river and numerous lesser streams. It is well wooded. The soil is of that black rich kind fitted to produce anything, and unfit for military movements during the monsoon. The water is of a very superior quality. The chief place in the district is Joonagur. The chief productions are Bajree and Jowaree. Of goats and sheep there is no lack. The great body of the people are Koonbees therefore the province is quiet. Babriawar takes its name from the Babria Kolees who inhabit it. It is almost the only hilly part of the province. The timber, soil, water, and roads are bad. It is thinly inhabited and has no towns of any importance.

Jetwar or Burda is flat but has a range of hills running north and south. The water is brackish and when not so is unwholesome. The soil is a light earth over a sea rock. The river Mensur flows into the Bhadur river, its waters are prejudicial to health. There is no road for carriages.

Okhamundul consists of the point of the peninsula on the North-West, and is cut off from the main land by a back-water or Runn, in some parts dry, except during the rains. The inhabitants are semibarbarous and thievish. It is covered with jungle with no cultivation. Here is a harbour where the heaviest ships lie in safety in all weathers, it has however a dangerous entrance.

The first three months of the year in Guzerat are distinguished by peculiarly thick fogs. The hot weather sets in in April and continues until the rain falls in June. From the end of September the climate takes a change uncongenial to the health of both foreigners and natives. The climate is in general pleasant. In the hottest weather the thermometer is seldom above 110° in the tent. In the cold season it is never below 42°. The convenience of carriage which this peninsula affords is confined to carts. Pack bullocks are unknown. Timber can be had from Gogo and Bhownuggur. The circumstance of a permanent camp being established in this province will be a source of pleasure to all the industrious and valuable part of the community.

The Runn which separates Kutch from Kattywar, has at different seasons the distinct appearances of a sandy desert, a muddy swamp and a wash. The word Runn or Erun signifies a waste tract dangerous to travel. The Runn is connected with the Gulf of Kutch on the west and with the Gulf of Cambay on the east, which being joined in the monsoon forms the peninsula of Kattywar into an island, the access to which however is never entirely cut off. The different passes of the Runn are seven in number. The first pass may be styled the Mallia. It is the narrowest of all and is entered at a large tank called Nowa Tulao. This pass is overflowed by water from the Gulf if

the full and new moons are attended with a strong west wind. Under the most favourable circumstances it would not be prudent to calculate upon the pass being open until the middle of December. The next pass is the Chickly, it is by no means a convenient pass, on account of the distance from water to water. There are quicksands in the pass. About six miles to the east of Chickly is the Venasir pass. This pass is accessible to carriages from the 1st of January until the 15th March. And to horse and foot at all seasons. The fourth pass is the Ghatilla pass, it is at no time very accessible to carriages. The fifth pass is the Tekur pass which lies four miles east of Ghatilla, this pass is more frequented than any other except the Mallia, it is open to carriages from the 15th of January to the 15th of April. Infantry can travel at all times but the distance is too great for horses to travel through mud and water. The Dehgaum pass is the sixth, about 14 miles to the east of Tekur. The pass is open until the beginning of the monsoon, but is only fitted for travellers. The last pass is the Potree pass, it lies 14 miles to the east of Dehgaum. The breadth of the Runn is here about 2 and $\frac{1}{2}$ miles. This pass has no mud at any season and is crossed throughout the year by carts. The boundaries of the Runn are as distinctly marked as those of the sea. They consist of a low rising bank covered with vegetation, distinct from the barren sand of the Runn. The banks are nowhere higher than sand hillocks. Upon the Runn itself there is not a blade of vegetation. In October and November the Runn is covered with a sheet of salt, foot passengers can travel over, but horses sink deep in the mud. In the rainy season the Runn is full of water about knee deep. In April and May during the west winds the Runn is covered with a cloud of red dust. The Runn cannot be traversed in safety during the day excepting in the rainy weather, to traverse the Runn at other times, after 9 A. M. and before 3 P. M. is almost certain death. Wild asses found nowhere else in India, are found in the Runn in great abundance. From Patree to Meetapoor the Runn now called Null Kanta changes its appearance, its boundaries being no longer well defined. A loamy soil succeeds to a sandy waste. At Meetapoor the Runny appearance is once more observed. In the fair season it is only a sandy space a few hundred yards in width, lives are often lost in attempting to cross in the rains. After lists of fortified places in Kattywar, the report contains tables giving information relative to the wandering tribes. Lieutenant J. Macmurdo observes in a historical sketch of Okhamundul, that the word Okha signifies any thing bad or difficult and Mundul is a word applied to any district of a country. The historical frag-

ments of this district can be traced so far back as (A. D. 1054). The Chowra Rajpoots where then the legal sovereigns of Guzerat and a family of this tribe were the last Rajas who reigned in Peeran Puttun. The history proceeds to the year (A. D. 1462) when the country was conquered by Sultan Mahmood Begurah. The soil is generally light and red of no great depth. The rock with which Okha abounds is much impregnated with iron ore, there are extensive tracts called Wudh for grazing camels of an inferior kind. The shore abounds in shell-fish, the jungles in quail, partridges and hares, the Babool affords an endless supply of charcoal. Captain Jacob in his brief memoir of Okha states that the Runn which almost makes this district, an island is 15 miles in length at its mouth in the Gulf of Kutch and about five miles broad, it narrows towards Muddee where it is one mile broad and is there separated from the sea by a narrow bank of earth and sand. Fossil organic remains are found at Bater and the shells thrown up are famous throughout India, the memoir contains statistical tables. In a report, bearing date 1843, of the Babriar district; Captain Jacob affirms that the soil is good, the indolence of the inhabitants alone preventing them from turning it to account. He enumerates the several tribes of this district and gives a short historical sketch of their origin and habits. Captain Jacob submitted a report on the iron of Kattywar in February, 1838. Iron ore is found chiefly in the north west quarter of the peninsula. "The smelting* process is very simple. An oblong shed gives a scanty shelter to the workmen during the dry season, and during the monsoon the manufacture is suspended. The ground inside is dug away in the centre to give room for two furnaces, which occupy the ends of the shed. They are long and narrow, to give good draught, and the masonry or brick work lined with clay, to keep in the heat. The opening for the bellows is stopped by a bit of plank protected with clay, into which fits a pipe connecting the nozzles of the two pairs of bellows; these again are stopped afresh with clay each time the work commences."

The expense of smelting 15 muns of ore is 33 korees including the tax of 2 korees levied by the Nuggur Durbar. Fifteen muns of ore produces about 6 muns of iron which sells for 48 korees, the profit is thus 15 korees or Ahmedabad rupees. The amount of iron manufactured annually in Kattywar is about 150 tons. Although Kattywar possesses ample capabilities for the production of iron beyond its own wants, yet the English metal drives it out of the market.

The report closes with an account of the introduction of vac-

* View of furnace given in the Report.

cination and the several treaties which have been concluded with the Peshwa and with the Chiefs of the several districts of Kattywar.

TRANSACTIONS OF THE GOVERNMENT OF INDIA.

For 1855-56.

THE Home Office reports that by a Resolution, dated 27th July, 1855, all orders affecting the Chaplains and Civilians of the Bengal Presidency as Services must emanate from the Government of India. It has been recommended that the number of Civil Servants should be raised to 600, and the Court while requesting fuller information, have sent out 50 additional servants. It has been arranged that no persons should obtain an independent charge, or even the powers of a Covenanted Assistant until he has passed an examination in the vernacular, in his special duties, and in ordinary education. All officers are directed as a rule to select their Ministerial Agents by examinations. Insolvency has been declared a sufficient cause of exclusion from the Public Service. The allowance of Rs. 200 a month to each of four Roman Catholic Bishops has been doubled. A priest is retained for every European Regiment, and a second at every station where there are two or more Regiments, other privileges have been granted to the priests. The Rajah of Khoordah has been informed that he would from 1st May, 1857, receive an endowment in land to the value of Rs. 16,517 a year in lieu of all payments to the temple of Jugunnath. From that date the official connexion with the temple will cease. It has been resolved to erect on the Neilgherries a central prison for all European convicts in India. An Editor's room has been established at each Presidency. The G. I. P. Railway Company has been informed that Government has the power to compel them to run Mail trains, and to carry the mails gratis. The E. I. R. Company has also been informed that Government would soon require a quick Mail train.

The Military department reports that the experiment of establishing Soldier's Gardens was suggested in 1854 by Sir W. Gomm. They were established accordingly at Peshawur, Meean Meer, in 1854, also Lord Dalhousie established them in Pegu with a separate establishment to take care of them.

The Financial Department report, that a new system of accounts has been established in the Public Works Department, in the Post Office, in the Pay Department, in the Stud Department, in the Commissariat and Ordnance Departments and in the Clothing

Agency. All Zillah accounts have also been centred in the Collectors' offices. New rules have been established for preventing fraud in the Pension Department. The accounts of the Government of Bengal have been separated from those of the Government of India. The accounts forwarded to the Home Authorities have been accelerated by twelve months. "While the Report on the Sketch Estimate of 1855-56 was submitted to the Court on the 22nd October, 1855, the Statement of Receipts and Disbursements for 1854-55 was despatched on the 19th of February last, and the Regular Estimate for 1855-56 on the 18th of March following." It has also been determined to forward every year an elaborate review of the financial position of the country. Preparations have been continued for closing the Government Agency, and Rs. 6,76,07,000 were withdrawn by 1st May, 1856. The operations of the year in the Mint were very extensive, and the amount of merchants' bullion delivered was Rs. 4,53,62,505.

The establishment was consequently increased, and Col. Smith, Mint Master raised the delivery by April, 1856 to 3½ lakhs of pieces a day. The establishment is to be further increased so as to deliver on an emergency 4½ lakhs of pieces a day. The Court of Directors has been also asked for permission to set up a special machine for the coinage of copper, and in the meantime to send out copper ready rolled, with 12 hand cutting Presses. The Assay Office in Pegu was abolished on 30th April, 1856.

The profits of the Bank of Bengal have been very high during the year averaging 18 per cent. The demands on the Bank have been great for subscription to the loan, and for the transmission of specie to Arracan to purchase rice. The export for this purpose is supposed to amount to 80 lakhs of rupees. The Bank has agreed to publish weekly statements of its assets and liabilities, and commenced the Agency business abandoned by the Government of India. On 15th March, 1855, Mr. H. Ricketts was appointed Commissioner for the Revision of Civil Salaries and establishments throughout India. His duty is to equalize salaries and duties, all over India, and reduce as far as possible the aggregate expenditure. A code of rules for uncovenanted service leave has been published. The Government, desirous to increase the production of opium had raised its price gradually to Rs. 3-10 a seer. In 1850, the restrictions as to extent of cultivation were taken off, and the production increased rapidly. It was soon found that from a fall in price in China the aggregate profit was reduced by the extension. The price paid to the cultivator was therefore reduced to Rs. 3-4 a seer thus saving 9½ lakhs a year.

Bombay requires water-works. The Government of India agreed to advance the necessary capital, provided the Municipality of

Bombay would pay interest at the rate of 4 per cent. One per cent. more was to be paid for a Sinking Fund to liquidate the debt. The Municipality consented, and the orders were issued.

The Public Works Department reports that in 1850 a Commission was appointed by the Court of Directors in each Presidency to enquire into the subject of Public Works. The Bengal "Commission submitted their Report in March, 1851. They expressed an unanimous and strong conviction of the utter unfitness of the Military Board for the superintendence of Public Works, whether Civil or Military, and they pointed out the mischief and inconvenience which would of necessity result from the attempt of such a body to control and direct the Department." It had too much work. They recommended

"First.—That the control of the Department of Public Works should be taken from the Military Board and vested in Provincial Chief Engineers.

Second.—That each Provincial Government should exercise control over Public Works, Civil and Military, in its respective Provinces, under certain limitation of powers in respect to the sanction of new projects.

Third.—That the Chief Engineers should be assisted by Superintending and Executive Engineers.

Fourth.—That the separate Office of Chief Engineer, as before constituted, should be abolished."

The Madras Commission recommended that the three-fold control exercised by the Board of Revenue, the Superintendent of Roads and the Military Board in this department should be abolished "and replaced by a Board of Public Works, which they recommended should consist of a Revenue Officer of the Civil Service and two Officers of the Corps of Engineers, and which should have the entire control and direction of all Public Works, Civil, Military, and Miscellaneous, throughout the Presidency." The Bombay Commission recommended the retention of the Military Board. It was finally arranged that the recommendations of the Bengal Commission should be extended with modifications all over India. A new Secretaryship to the Government of India was therefore created on 7th February, 1855. A system was introduced of submitting all projects in tabular statements. The statements are submitted annually under the following heads :—

"1. Works of magnitude requiring the sanction of the Government of India or of the Honorable Court.

2. Works already sanctioned, but not completed.

3. Repairs and contingencies."

An Annual progress report will also be furnished and printed. The powers of the Supreme and Local Governments with respect

to new works have been enlarged. The Supreme Government can sanction up to Rs. one Lakh, and the local Governments to Rs. 10,000. "A detailed scheme for the management of the Department and for the Offices of Account has been prepared and embodied in a General Order." An Engineering College has been sanctioned for Calcutta, and Madras. A Civil Engineering School has been established for three years at Lahore, and a similar institution at Poona will hereafter be merged in the Bombay Civil Engineering College. Arrangements have been made for securing a great number of apprentices and subordinate officers for the Department. A Committee has been appointed to consider the project of bridging the Hooghly at or near Calcutta. Its report has been submitted to Government. Measures are in progress for "completing the Bridges over all the rivers that cross the Grand Trunk Road except the Soane and the Ganges." And a line of road through Jessore to Burmah, and another through Balasore and Cuttack to Madras have been designed. "On the general question of Roads in the Ganges Valley, it has been decided that those which are calculated to bring the several Districts into communication with the Railway should first receive attention." The great Deccan Road, the Agra and Bombay Road are to be improved. Secondary roads have received attention. "The continuation of the Grand Trunk Road through the Cis-Sutlej States towards Lahore, and its further extension to Peshawur, have occupied the attention of Government." The Hindostan and Thibet road has advanced, and is open from Simla to the plains. It has been determined to widen the embankments on the right bank of the river Damoodah "so as to allow the surplus flood waters to flow free over the country, between the Damoodah and Roopnarain Rivers." This measure however is only temporary, and a scientific enquiry has been ordered. A project for irrigating Shahabad and Behar, suggested by Captain C. H. Dickens, has been strongly recommended to the Court of Directors. Efforts have been made to control the Mahanuddy and the Bassein branch of the Irrawaddy which periodically inundate the districts near their mouths. The works in completion of the Ganges Canal are steadily advancing. Rs. 15,25,000 are to be extended on the noble system of internal navigation connected with the Godavery and Kistna anicuts. The harbours of Coringa and Coconada are to be improved. A new Post Office in Calcutta is to be erected when the design, to be prepared by an Architect in England, has been received. A design for the Calcutta Presidency College is now under revision. It is in contemplation to fix a standard plan for European barracks, and "designs have also been called for of School Rooms adapted to the improved system of education for European Troops serving in

India, as also of Bakeries and Slaughter Houses, of Fives' Courts, Skittle Alleys, &c." The expenditure is thus displayed :—

" For Punjab,	...	...	...	44½ lakhs.
" Scinde,	..	..	..	24½ "
" Madras,	...	...	...	10 "
" Bombay (exclusive of Scinde,)	...	...	...	6½ "
" North Western Provinces,	...	..	..	5 "
" Bengal,	..	..	..	3 "

The subject of Railway communication in India, was first laid before the Supreme Government by Mr. R. Macdonald Stephenson, in 1843. In the end of 1851, a line was surveyed and reported on, between Burdwan and Rajmehal, and an extension of the Railway Company's Capital by £1,000,000, was sanctioned for the purpose of executing this line. In the cold weather of 1852-53, a line was surveyed from Rajmehal to Allahabad, and reported on, and in April, 1853, the Governor General's celebrated Railway Minute was recorded, and the construction, by the East India Railway Company, of a line from Burdwan to Delhi, were soon afterwards sanctioned by the Hon'ble Court, and interest was guaranteed on a capital of £9,000,000, inclusive of the £1,000,000, already sanctioned for the Rajmehal extension. The direction of the line from Burdwan to Allahabad having been previously approved, that from Allahabad to Cawnpore was sanctioned in June, 1854; from Cawnpore to near Agra, in December, 1854; and thence *via* Agra, and Muttra to Delhi, in November, 1855. From Howrah, to Pundooah, thirty-seven and a half miles, the Railway was open for traffic on the 15th August. The official opening of the whole line to Rancee-gunge took place on the 3rd February, 1855. In 1849, the Great Indian Peninsula Railway Company entered into a contract with the Hon'ble East India Company, for the construction of an experimental line, 35 miles long, calculated to cost £500,000 to form part of a trunk line connecting Bombay with Kandeish and Berar, and generally with the other Presidencies of India. The first section of the Bombay line was opened to traffic on the 16th April, 1853. The fourth section of the line was opened to traffic to Wasindree in October, 1855. The Hon'ble Court have now sanctioned the extension of this line through the valley of the Nerbudda, to meet a line from the Ganges valley to Jubbulpore." A survey has been ordered from "Baroda, or Ahmedabad, to Agra, or Delhi, and from Broach, by the Tirella Ghat, to Agra." In 1855, the Court of Directors sanctioned the construction by the Scinde Railway Company of a line from Kurrachee to some point on the Indus. Jerruck is to be the terminal point.

REPORT ON THE MADRAS PRESIDENCY.

For 1855-56.

THE Madras Presidency contains an area of 1,36,872 square miles, with a population of more than 2,20,00,000. This population speaks five languages. In 1855, there were only 100 European functionaries among this population. "The following are the tribunals established for the redress of Civil injuries: the Sudder Court in suits above Rs. 45,000; 20 Civil Judges in suits above Rs. 10,000; 9 Subordinate Judges and 12 Principal Sudder Ameens in suits under Rs. 10,000; 23 Sudder Ameens in suits under Rs. 2,500; and 126 District Moonsiffs in suits under Rs. 1,000 in value. The Sudder Court is the tribunal of ultimate appeal in suits below Rupees 10,000; but from their decrees in suits above that sum, an appeal lies to Her Majesty in Council. There are also 3 Government Agents, with 6 Assistants, having jurisdiction in suits above Rupees 2,500 in value. In Combaconum there is an Assistant Judge appointed to hear appeals from the decisions of the district Moonsiffs." The suits instituted are like suits every where else, but suits about land are almost confined to the districts in which land has a saleable value. In Canara disputes about succession are frequent, property descending through the female line. The son inherits not his father's property but his uncle's through his mother. "The effect of this is to foster combinations between father and son for the purpose of disinheriting the nephew by alienating the property during the father's life time, on the asserted ground that it is self-acquired and therefore not subject to the above Rule; while it is the object of the nephew to show that it is ancestral and thereby to prevent such alienation." The entire number of Civil Suits has been 88,635. "Many of the judicial officers employed in redressing Civil or private wrongs are likewise engaged in the punishment of public or criminal injuries. Criminal justice is administered by the Foujdaree Udalt, 20 Session Judges, 9 Subordinate Judges, 12 Principal Sudder Ameens, 20 Magistrates, 18 Joint Magistrates, 39 Assistant Magistrates, and 304 Heads of Police, and Police Ameens. For the punishment of trivial offences, the heads of villages are also vested with police powers, and under the provisions of Act No. XII. of 1854, three district Moonsiffs are exercising criminal Jurisdiction." The proportion of criminals to the population is one in 436.

The Police of the Presidency consists of the stipendiary and

the Rural Police. "The officers comprised under the Stipendiary Police are heads of Police, Sub-Police Officers, Police Ameens, Jemadars, Duffadars, and Peons." The Heads of Police also act judicially, and in that capacity are efficient. "The Subordinate Police Officers are only authorized to take cognizance of heinous crimes, and to apprehend and forward the parties to the Heads of Police with the record of their proceedings." The Police peons often neglect their duties, are underpaid, and therefore extortionate. In "Malabar there is a regularly trained and disciplined Police corps, commanded by commissioned Officers; there are likewise local corps for Police purposes in Vizagapatam and Ganjam, and those in the latter district are being augmented." The Rural Police trace out crime, and from their local interests, and local knowledge are usually efficient.

When the Inspector of Prisons took charge of his office he found the prisoners better off than free men. There was no classification. The system of out-door labour opened the way to every abuse. There is no system of task work and the labour performed is not penal. The sanitary condition of some jails is so bad that they cannot be retained. It is recommended that four division and one central Jail be established. All prisoners condemned for seven years and upwards should be sent to these prisons. Prisoners should be made after a time to work under the executive officers while the internal arrangements of the prisons should be managed by Europeans. "The total number of convicts in all the Jails, remaining at the beginning of the year and admitted during it, amounted to 11,695, of whom 5,965 remained at the close of the year; but when it is remembered that 52,745 were in one year supposed to be implicated in reported crimes and misdemeanors (irrespective of petty offences), and that 21,726 were said to be implicated in cases involving grave injury to person or property, it is to be feared that the paucity of convictions is rather owing to the inefficiency of the Police and want of co-operation of the inhabitants (who selfishly disregard all offence which does not affect themselves) than to any paucity of offenders. The Madras Presidency is divided, for Revenue purposes, into 21 Districts, of which the first 5, forming the Northern Circars, were, during the year 1855-56, under the charge of the Commissioner, and the remaining 16 under the management of the Board of Revenue. The Revenue systems in force in the Madras Presidency are the

Zemindary.
Village joint rents.

Ryotwar.
Oolungoo."

Under the zemindaree tenure the landholder pays a fixed sum to Government. It prevails chiefly in "the Northern Circars, though there are large proprietary estates in other districts, as Madura, Nellore, North Arcot, &c." In the village system the villages collectively stand in the position of the Zemindar, but there is a want of clearly defined individual property in the land. "Under the Ryotwar system every registered holder of land is recognized as its proprietor and pays direct to Government. He is at liberty to sublet his property, or to transfer it by gift, sale or mortgage. He cannot be ejected by Government so long as he pays the fixed assessment, and has the option annually of increasing or diminishing his holding, or of entirely abandoning it. In unfavourable seasons remissions of assessment are granted for entire or partial loss of produce. The assessment is fixed in money, and does not vary from year to year, except in those cases where water is drawn from a Government source of irrigation to convert dry land into wet or one into two-crop land, when an extra rent is paid to Government for the water so appropriated; nor is any addition made to the assessment for improvements effected at the Ryot's own expense." Unfortunately the assessment has been fixed too high, and various restrictive rules interfere with the freedom of the ryot.

The greater portion of the Presidency is under the Ryotwaree tenure. The system of Oolungoo renting prevails in Tanjore and Tinnevely only, and is not general even there. "Its peculiarity consists in the Government demand being dependant on the current price of grain." There is a standard fixed. If prices within the year rise above the standard or fall below it Government and not the ryot receives the profit, or bears the loss. The season of 1855-56 was on the whole adverse. The table subjoined shews the extent of cultivation in the sixteen districts excluding Canara, Malabar and Madras. The increase in Bellary is remarkable because the population has suffered from two bad years. The collections stand as follows :—

" 1854-55,.....	Rs. 2,68,88,343
1855-56,.....	„ 2,85,06,203

Increase, ... 16,17,860

The increase occurred chiefly in South Arcot, Tanjore, Tinnevely, Canara and Malabar." The increase resulted chiefly from reductions. In South Arcot the reduction amounted "to about 7 lakhs of Rupees on land under cultivation, exclusive of a further sum of about 8½ lakhs allowed on culturable land lying waste." The increase in the area of cultivation has been 1,78,527 acres, and in the collections, Rs. 6,82,483. The

designated the Madras University, the Provincial Schools at Combaconum, Calicut, Bellary, Rajahmundry, and Cuddalore, and an elementary English School at Pulicat." The school at Cuddalore has been turned into a Zillah School and two others have been opened in Salem and Chittoor. Another will be established in Madura. The Report recounts the history of the University College, and mentions that the Presidency College for local reasons does not contain either the Medical or the Civil Engineering College. The number of students at the close of last year was 247. The report of the Principal for the year is on the whole favourable. A Normal School was opened on 3rd March, 1856. There are now 8 Anglo-vernacular schools supported by Government in the Madras Presidency. The report details the schools in existence in the districts whether State, private, or Missionary, and adds that "the operations of this Government in the Department of Vernacular Education are, as yet, in their infancy, and owing to the circumstances referred to at the commencement of this Report, but little progress has been made during the year under review." In Rajahmundry village schools have been established by voluntary subscription. They are attended by 1870 pupils who study Reading, Writing, Geography, and Arithmetic. In the hill tracts of the Ganjam District there are 14 schools for the Khond population. It is difficult to induce the Khonds to study, they having an idea that education and taxation go together. Of the number of pupils 14,799 were Hindoos and only 17 Khonds. There is however, a change apparent in the sentiments of the hill Chiefs. One hundred vernacular schools are to be established, giving instruction in reading, arithmetic, geography, and history when histories can be obtained. They have not however as yet been organized. "In connection with the subject of Vernacular Education an interesting Report has recently been laid before Government on the Vernacular Village Schools supported by the Church Missionary Society in Tinnevely. No less than 317 Schools of this class are supported by this Society in the District of Tinnevely under 267 Masters and 107 Mistresses, whose salaries range from Rupees 3 to Rs. 7 per mensem. In these Schools 7802 pupils are under instruction (5116 being Christians and 2686 Hindoos.) The schools are considerably in advance of ordinary village schools. A series of works in Tamil, and Malayalam are being prepared, and a professorship of vernacular literature has been established in the Presidency College. "This Officer is employed, not only in giving instruction and in superintending the course of Vernacular study in the Presidency College, but in advising the Director of Public Instruction on all matters connected with Vernacular Education, and in examining

and reporting on all Vernacular School books prepared for the Educational Department." A vernacular newspaper has also been started at Rs. 3 a year.

The sum authorized for expenditure on Public Works in 1855-56 was Rs. 44,21,719. There is an Executive Engineer with an establishment in every district of the Presidency. The transfer of the department from the revenue to the professional authorities is not yet, however, quite complete. The operations of the department have been chiefly in roads, bridges and works of irrigation, which are detailed.

The number of troops absent from the Madras Presidency in Burmah, the Straits and Labuan is 10,877, which must be relieved once in three years. The cost of this movement is Rs. 2,54,000 a year. A steam vessel constructed by the Court of Directors is on her way to Madras.

The total income of the Madras Presidency for the year 1855-56 is thus estimated :—

Land Revenue,	..	..	Rs.	3,44,32,000
Salt,	..	..	..	49,50,000
Tribute,	..	..	..	36,00,000
Abkaree,	..	..	..	22,45,000
Customs,	..	..	..	11,00,000
Moturpha,	..	..	..	10,77,000
Miscellaneous,	..	..	..	5,03,000
General department including Stamps, Post Office, &c.	}	...	...	12,18,000
Military miscellaneous,		...	...	2,93,000
Judicial miscellaneous,	...	...	...	1,42,000
Marine,	...	...	...	79,000
Extraordinary Receipts,	...	...	...	80,000
miscellaneous,	...	...	...	5,64,000

Total, ... 5,02,83,000

"The estimated disbursements for the year under report were as follows :—The expenditure, in the General Department, was assumed at Rupees 1,05,66,000. This consists partly of Political Disbursements chargeable on the Revenues, and partly of Salaries, Establishments, &c. of Officers employed in the General Department. The Political Disbursements were estimated at Rupees 55,87,000." The Judicial charges were Rs. 36,02,000, the revenue charges Rs. 56,97,000. The marine department costs Rs. 1,27,000. The military expenditure amounts to Rs. 2,93,66,000. The total charges on Public Works are Rs. 71,61,000, and the extraordinary charges to Rs. 4,43,000, and extraordinary Public Works to Rs. 43,81,000. The

total disbursements amount therefore to Rs. 5,69,62,000 leaving a deficit of Rs. 57,33,000. "This deficiency has, however, been more than met by the balance on hand at the beginning of the year, and which amounted to 17,30,000½ lakhs of Rupees. The result would have been different :—the balance would have been augmented, instead of being swallowed up ;—a surplus, instead of a deficit, of receipts would have been exhibited, to the extent of Rupees 24,29,000 or nearly a quarter of a million sterling,—if the Expenditure on account of the Madras Troops, which are not actually serving within this Presidency had not been carried to account." Certain reforms in matters of account and audit are described, and it is mentioned that the coinage of the year has been Rs. 55,72,000. The bullion presented at the mint by merchants has been Rs. 72,61,000. The daily delivery of rupees was raised to 36,000 a day for about a month, but the work wore out the cattle which turn the laminating mills. The expenditure of the Mint is Rs. 1,30,404 and the receipts Rs. 2,09,074. "During the year under review two Chaplains and four Assistant Chaplains have been added to the Establishment of the Church of England, making the number of the former 13 and of the latter 22." Churches have been erected at Combaconum, Nellore, Mercara, Palamcottah, Cuddapah and Secundrabad.

The Nuwaub of the Carnatic died on 7th October, 1855 without issue. On the 29th of the same month the Raja of Tanjore died leaving no issue. In both cases the office and dignity have ceased, but liberal provision is to be made for all relatives. The Raja of Travancore has been warned as to the misgovernment existing in his State. In February, 1856 a petty Chief of Purlah Kimedyy roused the Soorahs and other savage tribes to outrage, but the prompt and vigorous measures of the Government suppressed the movement.

6343 coolies have emigrated to the Mauritius during the year. The emigrants proceed to this island cheerfully, and often renew their engagements with the planters ; Emigration to the West Indies is suspended by the immensely increased demand for labour throughout the Presidency. Cotton gins of improved construction have been introduced by Government. The experiments to introduce merino sheep from Mysore, however, have failed. Exhibitions of agricultural produce have been sanctioned in each Zillah, and Rs. 60,000 allowed for prizes. There are conservancy establishments for the preservation of forests in Canara, Malabar, and Coimbatore. In all they pay their expenses and return a profit. A separate establishment for the entire Presidency is about to be organized. The report records a few partial surveys, mentions that the observatory is maintained,

and observes that the Government central museum, Madras "instituted 14th August, 1851, by Notification of Government; contains 82,000 specimens, *viz.* (I.) A Museum of Natural History, with 12,000 specimens, illustrative of Mineralogy, Geology, Palæontology, and Zoology; (II.) A Museum of Economic Geology, with 9,000 specimens, illustrative of *raw materials* in the Mineral, Vegetable, and Animal Kingdoms; Machinery, Manufactures, Sculptures, Models, and the Plastic Art; (III.) A Museum of Geographical Geology, with 7,000 specimens; (IV.) A Public Library of 1500 books; (V.) Coins, Antiquities, &c., and (VI.) A Zoological Collection of Animals." The success of the vaccine establishment has diminished, the decrease of children vaccinated in seven districts being 23,103. The total of operations however has been 4,10,372, and the vaccine lymph is considered efficient. The ratio of failures is 77.9 per 1000. The expense is Rs. 28,308. The number of patients treated in the 35 Civil Dispensaries amounts to 1,84,069, and the cost to Rs. 62,990. The sanitary condition of the Army during the year has been satisfactory. The ratio of mortality was 2.1 per cent. among the European and 1.1 among the native soldiery. The Appendix contains the returns summarized above, with the addition of the census taken in 1851. It exhibits a population of 2,38,01,697, of whom 1,10,50,113 are males and 1,05,31,584 females, 1,99,01,808 Hindoos, and 16,79,899 Mussalmans.

ANNUAL REPORT ON COCHIN.

For 1855-56.

ON 23rd July, 1856, Lieut. General W. Cullen reports that the Appeal Court of Cochin consists of one Hindoo, one East Indian, and one Shastry. There are two Zillah Courts each with two Judges, and a Shastry. There are no Moonsiff's Courts, but in Chittoor the Tehsildar is also a Moonsiff. In the native year 1,03,01,045 cases were filed of which 1040 were decided. The Appeal Court disposes of criminal cases, and in extreme cases an appeal lies to the Rajah and Resident. In the year mentioned above 221 criminal cases were disposed of. The Dewan is the Magistrate, and the Tehsildar Police Officers. The Revenues amount to

Land Revenue,	..	..	..	..	Rs.	4,10,996
Teak, ..	..	..	..	..	"	37,656
Customs, ..	..	..	..	..	"	35,075
Salt, ..	..	..	..	..	"	1,09,163
Tobacco, ..	..	..	..	..	"	55,875
Pepper, ..	..	..	..	..	"	21,875
Miscellaneous,	..	..	..	..	"	25,309
Abkaree, ..	..	..	..	..	"	5,961

The provision for education consists "a small English School at Ervacolum for 40 boys, a School at Trichoor for 20, and an English School for the Jews in the Town of Muttoncherry. The total expense is about 2,000 Rupees per annum." There are 5881 scholars in the vernacular schools.

The roads throughout the province are excellent. The country is irrigated from tanks and the fall of rain is large. The Company's post does not pass through Cochin. A few guards are kept up at an expense of Rs. 16,504. The population amounts to 3,31,693 of whom 9764 are Bramhuns, 81,082 Syrian Christians. The teak forests are diminishing. "Iron for agricultural purposes, is manufactured from the magnetic iron sand and iron lateritic clays which abound in the eastern portion of the province. No other ores have been discovered. As in Travancore the high mountains and partial table lands of Cochin as well as all the lower detached ranges towards the sea coast, appear to consist exclusively of granite, gneiss, and horn-blende rocks. Laterite occupies much of the low country as usual, but with granitic or gneiss rocks constantly appearing at the surface, even to within 5 or 6 miles of the Sea Coast. Towards the East of the Chittoor District commence those widely distributed deposits of kunkur and travertine which cover so great a portion of the District of Coimbatore to the North, as well as to the East, towards Oodamalacotah, &c." The total disbursements amount to 7,26,973, and the total revenue to Rs. 7,40,522. The tribute paid to the Company is two lakhs of rupees. The Government has eight lakhs of rupees invested in Company's paper derived from the tobacco monopoly.

TRAVANCORE.

In 1855-56.

ON 21st July, 1856, Lieut. General Cullen, Resident, Travancore and Cochin reports that Travancore contains an Appeal Court, of four Judges and five Zillah Courts of two Judges and a Shastry. There are 15 Moonsiff's Courts. The Moonsiffs receive from Rs. 30 to Rs. 40 each. The Law is Hindoo law modified in particular cases. In 1030 the number of suits filed and received was 6,945 ; of which 5,626 were decided. The Judges of the Appeal Court are the Criminal Judges ; one of them goes on circuit half yearly. Their powers are limited :—

	Fine.	Imprisonment with hard labour.	Lashes.	Security for Good Conduct.
Criminal Court, 100 Rs.		1 year	20	500 Rupees.
Circuit, ... 200 "		3 "	36	1,000 "
Appeal, ... Discretion-		14 "	36	Discretion-
	ary.			ary.

Heavy sentences are submitted to the Rajah and the Resident. In the same year 604 Criminal cases were decided. It is proposed to appoint Civil and Sessions Judges. Convicts are employed upon the roads.

The Revenue amounts to

Land Revenue,	..	..	Rs.	15,26,427
Duties,	..	..	"	1,95,144
Salt (Country,)	..	..	"	1,16,936
— (Bombay,)	..	..	"	1,53,706
Cardamums, ..	..	..	"	1,17,962
Tobacco, ..	..	..	"	10,00,000
Pepper, ..	..	..	"	1,75,744
Miscellaneous,	..	..	"	1,52,211
Abkaree, ..	..	..	"	56,899
Teak, ..	..	..	"	41,450

Stamped paper is not used except for sales, mortgages or transfers of property. The rates are very low. Tobacco is now smuggled into the country to such an extent that the revenue is rapidly deteriorating. There is a free-school at Trevandrum with 120 boys of all castes. "The course of instruction is Grammar, Arithmetic, Geography, Mathematics, including Algebra and Geometry, &c. There are also several private English Schools in different parts of Travancore, besides those conducted by the Members of the Church and London Mission Societies." The private schools are very numerous, the Mission schools educating 6,992 children, and other schools 19,700. The road from the frontier to Trevandrum is in tolerable order. There is a system of irrigation in four talooks, but not maintained as it ought to be. Alleppee is the principal port, and all monopoly articles are there collected and sold. It is an open roadstead but safe and convenient. Quilon has a tolerable anchorage but its importance has diminished. There are 14 Protestant Missionaries in Travancore. "The Travancore Government maintain a body of Infantry called the Nair Brigade, consisting of 2 Battalions of 750 bayonets each." It is commanded by a Captain of Madras Infantry with two European officers, two "local" officers,

and a local Medical officer. It costs Rs. 1,28,081. The population of Travancore in 1854 was 22,63,647. The Syrian Christians number 1,91,009. There are 1,40,000 soil slaves. The forests, chiefly of teak, are a monopoly. There is no mining, the Ghauts never having been examined with care. Considerable attention is paid to vaccination, and 27,054 persons were vaccinated last year, the failures being only 11 per cent. There are charity hospitals at Quilon, Trevandrum, and Alleppee. An observatory constructed in 1837-38 costs Rs. 14,000 a year, and a smaller one has recently been erected on a peak in the Ghauts at an altitude of 6200 feet.

For the eight years ending 1853-54 the financial position of Travancore has been as follows :—

The average Annual Receipts have been about, ..	40 Lakhs.
Although one year, owing to drought, the Receipts were only,..	36½ "
The average Annual Disbursements for the same interval, ..	39½ "
Or below the Receipts, ...	½ "

There has been a considerable increase of expenditure since 1826, in Dewasoms, Ootperahs, and the cost of the Palace. The charges for the administration of justice, collection of the revenue, &c. have scarcely changed for 30 years, and amount to Rs. 6,52,050. The tobacco is the only monopoly yet seriously endangered. It is feared that it will not afford this year more than 10½ or 11 lakhs of Rupees, and must hereafter gradually diminish, owing to the large quantities smuggled in from Cochin and along the Coast." The native Government wished to suspend payment of the subsidy, but this has been declared impracticable. "The low country of Travancore, from Cochin to Quilon, has a mean breadth of from 40 to 50 miles, the beds of the rivers at the base of the Ghats nowhere exceeding 2 or 300 feet above the sea, nor does the general level of the country, though much undulated and intersected by numerous ranges of rocky hills, rise materially above that level. A table-land, some 60 miles from North to South, separates the low country from the Districts of Madura and Tinnevely, its Northern half being from 20 to 25 miles broad, the Southern half about 8 miles only. On its Western edge, this high land is about 2,500 feet above the sea, but it rises gradually to the Eastward, where it attains an altitude of 4,000 to 5,000 feet, and where the temperature in the month of January is about 60° and in the month of April 70°." European fruits have been tried

and succeed on these high lands. Nutmegs, cotton and coffee have been introduced into Travancore by a Madras firm.

ANNUAL REPORT ON BOMBAY.

For 1855-56.

THE Presidency of Bombay contains eight zillahs. "In six of these there is a Judge. In Khandeish and Sholapore, there are only Assistant Judges. In three Zillahs there are Senior Assistant Judges at detached stations." There are moreover 7 Principal Sudder Ameens, 13 Sudder Ameens and 73 Moonsiffs. "The Zillah Judges have power to decide original suits and appeals involving sums of any amount. The Senior Assistant Judge, at a detached Station, has power to decide appeals in which the sum in dispute amounts to Rupees 5,000. An Assistant Judge is, in the first instance, strictly an Assistant to the Judge, performing such duties in the Judge's Office as may be entrusted to him. But he may be invested with power to decide appeals up to Rs. 5,000. A Sudder Ameen has power to try original suits not involving larger sums than Rupees 10,000. A Moonsiff has power to try original suits not involving larger sums than Rupees 5,000." The principal reform introduced during the year has been to change the ministerial officers of the native courts into servants of the State. Formerly they were servants of the Judges, paid by them, and removed by them. The returns of civil business exhibit an excessive amount of arrears caused by frequent vacancies from sickness. The same courts decide all criminal cases, the power of the Sessions Judge extending to seven years' imprisonment with hard labour, of a Senior Assistant Session Judge and an Assistant Session Judge to two years. "The Magistrate and his Assistants can adjudge sentences of imprisonment with hard labour not exceeding one year."

The attention of Government has been directed anxiously to the question of torture. There is no revenue torture in the Presidency. The police, however, occasionally employ torture, and painful cases transpired at Nassick, Poona, and Surat. The Government has dismissed a Foujdar and removed a Magistrate for carelessness on the subject. The practice of obtaining confessions has been discouraged, and in Sind, a Non-regulation Province, the police have been prohibited from receiving them. In October, 1855, an officer was appointed to the supervision of the Police establishments, under the title of Commissioner of Police. "In the Bombay Presidency, each Collectorate has its Superintendent of Police, a Military or Uncovenanted Officer,

under whose command the Police force of the District, both Village and Stipendiary, is placed, and to whom, as an Assistant of the Magistrate, is entrusted the duty of making all arrangements for the prevention of crime and the apprehension of criminals." Among his duties is a reorganization of the village police, which has been actively commenced, and the stipendiary Police have been more efficiently distributed over the districts. A thorough reform has also been commenced in the Police of the Presidency town, under the superintendence of Mr. Forjett. An Inspector of Jails has been appointed, penal discipline has been rendered more strict, and under his supervision, there is already a perceptible diminution of mortality in the Jails though the number of prisoners has been increased. "The Presidency of Bombay comprises, in all, about 1,40,407 square miles, of which 63,599 are included in the Province of Sind, and 75,808 represent the extent of the British possessions in the Provinces of Western India, known as Guzerat, the Deccan, Khandeish, the Southern Mahratta Country, and the Konkan."

There are thirteen Collectorates exclusive of Sind which is managed as a Non-regulation Province. In the Collectorates the Collector is, as to almost all revenue questions, subject to the ordinary courts. In Sind he is responsible only to Government. The Report enters into a description of each Collectorate which may be thus summarized :—

<i>District.</i>	<i>Area square miles.</i>	<i>Population.</i>	<i>Capital.</i>
Ahmedabad,.....	4,402	6,53,730	Ahmedabad.
Kaira, ...	1,375	5,80,631	None.
Broach, ...	1,351	2,90,984	Broach.
Surat, ...	1,482	4,93,934	Surat.
Khandeish, ...	12,078	7,85,744	None.
Tanna, ...	5,400	8,74,570	Tanna.
Poona, ...	5,250	6,98,587	Poona.
Ahmednugger,.....	10,078	10,02,733	Ahmednugger.
Sholapoor, ...	8,565	6,85,587	Sholapoor.
Sattara, ...	11,000	12,19,673	Sattara.
Belgaum,.....	6,515	10,35,738	Belgaum.
Dharwar,.....	3,790	7,57,849	—
Rutnagherry, ...	4,500	6,65,238	Rutnagherry.
Bombay, ...	20	5,20,800	Bombay.
Kurrachee, ...	19,240	3,44,144	Kurrachee.
Hydrabad, ...	—	—	Hydrabad.
Shikarpoor,.....	11,532	5,13,674	Shikarpoor.

This Collectorate is watered by the Gharr, a branch of the Indus recently connected with the Narra. "It is indicative of the great returns derivable from a Public Work, well conceived

and judiciously executed, that this new cut has in one season paid eight-fold its own cost." It is expected, that the frontier districts settled by the plundering tribes will yield a revenue of two lakhs of rupees.

The land revenue system of the Presidency is the Ryotwaree, interrupted by village holdings. In Sind the old grain assessment has been commuted for a light cash assessment, in most districts. The Revenue Survey has been nearly completed in the Southern Division, but the hereditary farmers of Rutnagherry offer a strong opposition. Several improvements of detail have been carried out in the Survey, and alienated lands are surveyed whether their owners like it or not. The enquiry into alienated revenues commenced in 1843, and has been steadily prosecuted. 1,08,200 claims have been received, of which 1,00,000 remain for adjudication. Frauds to a great extent have been discovered in claims to small pieces of land. The expenditure of the department has been in all Rs. 1,18,464. The annual revenue immediately saved is Rs. 24,630, and the revenue to be saved after the lapse of one or more lines Rs. 63,212. The emoluments of village officers have been regulated so as to prevent endless sub-division. The service of Government is now therefore an object of ambition.

The amount of customs levied during the year has been on

Imports, ...	Rs. 28,59,672
Exports, ...	33,31,238

Total, ... 61,90,910

This shows an increase of Rs. 40,327 over the preceding year. The custom revenue of Sind amounts to Rs. 70,000 but much of it is levied in Bombay. The frontier duties amount to Rs. 65,276. All duties on the inland frontier of Sind have ceased; the Khan of Khelat now levies only 8 annas a maund on all goods. The salt revenue "is realised from an Excise duty levied, at the pans, on all Salt removed, at the rate generally of 12 annas per Indian maund of 82 lbs." The excise amounted during the year to Rs. 27,49,677. The opium revenue is levied by a tax of Rs. 400 a chest, and amounts to Rs. 1,00,56,400. A Director of Public Instruction and four Inspectors have been appointed. The Government grants to private schools, a school-house, contingencies, and half the charge for masters. Sixty schools have been thus established, and 20 will immediately be created. A searching examination has been made into the condition of the Colleges. It has drawn the attention of Government to much requiring correction. The native gentry in Kattywar and some towns of Guzerat have given munificent donations towards education.

Public Works have been checked by the absence of scientific Engineers; of eighteen Captains in the Corps five only have been available, and of thirty-two first Lieutenants only fifteen. There is not one second Lieutenant in the Bombay Army who is duly qualified for Engineering Service. Twelve gentlemen have been sent out by the Court of Directors, but they want experience. The changes also have been excessively frequent. The following shews the work accomplished:—

Expended on Roads and Bridges, ..	Rupees 12,88,695	11	9
Docks, Dock Yard, Offices, and Buildings for Marine purposes, ...	..	71,891	9 11
Piers and Jetties, and clearances of Tidal Rivers and Creeks, ...	..	23,652	7 3
Light Houses and Beacons, ...	..	6,914	3 2
Reclamation of Land from the Sea, Canals, Irrigational Bundaras, Tanks, and Wells, ...	..	1,20,159	4 0
Fortifications, Magazines, and Military Store-houses and Offices, &c., ..	..	3,46,586	13 0
Barracks and Buildings connected therewith, ...	..	8,25,642	11 0
Schools, ...	..	2,84,800	15 6
Hospitals, ...	..	27,032	9 6
Churches, Burial Grounds, &c., ..	..	34,715	12 11
Jails and Buildings for Police purposes, ...	..	16,693	4 11
Miscellaneous: Government Houses, Cutcherries, Travellers' Bungalows, Dhurrumsalas, Ferries, Post Offices, Telegraph Stations, &c. &c., ...	..	1,11,622	11 2
		2,50,484	0 8

Total, Rupees, .. 29,08,892 2 9

The most important original works are:—"Lower Narra Bunds"—Original cost, Rupees 36,666—Net Revenue, Rupees 34,604. *Fordwah Canal*—Original cost, Rupees 900, additional cost, Rupees 4,600; in all Rupees 5,500—Net Revenue, Rupees 73,600. *Figi Bund*—Original cost, Rupees 9,818—Net Revenue Rupees 78,754. *Balawulpoor Bund, in the Sehwan Deputy Collectorate*—Original cost, Rupees 118—Net Revenue, Rupees 1,476." The Report proceeds to detail the history of the Railway works and observes that the Bhore Ghaut has been finally sanctioned as the point of ascent, to the lands beyond the range. During the year the Great Indian Peninsula line has been extended from Callian to Campoolse or 53½ miles in all. "The works on the Bhore Ghaut, as well as the section to Poona, were commenced in January, 1856. The south-east extension, as far

as to Sholapoor, a distance of 165 miles, was also sanctioned, and the works were commenced in March. Without waiting for the working plans, the contracts have been let on rates. Sanction was also given to the construction of the Thull Ghaut incline, and for the North-east line, as far as Julgaum (miles 210;) all these are now being staked out, and tenders will be invited during the ensuing year. Surveys of extensions from Jubbulpoor to Mirzapore a distance of 237 miles, were also sent in, and of a branch to Comrawuttee and Nagpoor, a length of 246 miles, of which latter the construction has been sanctioned. It has now, therefore, 89 miles open for traffic; 219 miles let to contract and under construction; 210 miles sanctioned and being prepared for contract; 694 miles surveyed, but construction not yet sanctioned." The Baroda and Central India Railway completed their survey from Surat to Broach, and broke ground on 1st May, 1856. The Sind Railway has been employed surveying lines between Kurrachee and different points upon the Indus.

The Indian Navy includes twelve steamers, two of 1800 tons and two of 1450, and nine sailing vessels, one of fourteen, and two of twelve guns. A new Steam frigate has been laid down, but during the year there have been no important measures connected with the Navy, the pilotage dues, or the harbours of the Presidency. The following statement shows the financial position of the Presidency :—

RECEIPTS.

General Department, including Sind and					
Sattara,	...	...	...	...	21,75,097-3-1
Judicial	ditto	ditto	ditto	...	3,86,378-1-5
Revenue	ditto	ditto	ditto	...	4,64,64,730-5-8
Marine	ditto	ditto	Sind	...	6,47,316-7-6
Military	ditto	ditto	ditto	...	10,81,185-1-3
Tribute,	...	...	...	...	8,85,698-8-2 5,15,90,405-11-0

DISBURSEMENTS.

General Dept. including Sind and Sattara,					1,21,68,037-2-8
Judicial	ditto	ditto	ditto	...	43,48,681-4-7
Revenue	ditto	ditto	ditto	...	1,21,85,938-9-5
Marine	ditto	ditto	Sind	...	26,81,179-4-3
Military	ditto	ditto	Sind and Sattara,	1,97,50,421-14-10	
Tribute and Guicowar Cession,	...	...	...	...	1,16,985-7-115,12,50,498-11-8

Balance Rupees,.....3,39,911-15-4

Showing a surplus of 3,39,911. The cost of the civil establishments amounts to Rs. 4,44,570.

The number of Chaplains in the Bombay Presidency has been increased to 32. There are 21 churches consecrated and eight not consecrated. Eight more are under construction. The Report details the political transactions of the year. No events have

occurred of the slightest interest except the blockade of Berbera. This has been maintained throughout the year to compel the surrender of the Somalis who attacked Lieut. Burton, and murdered Lieut. Stroyan. The men have not been surrendered but the Somalis have lost their entire trade.

"The only measures of general interest in the Military Department, have been the introduction of Army Schools, and the experiments with the rifle invented by Lieut. Col. John Jacob. This rifle is four-grooved, with a new conical ball and shell. The result of a trial was convincing, that, before a small body of marksmen armed with such weapons, no Battery of Artillery could long hold its ground ; for a box filled with powder was exploded by a shell fired at 300 yards, and from the effect of the shells on the butt, it was evident that the same result would have been attained at the greatest range from which practice was made, viz. 1,200 yards ; the shells on exploding tearing out a large fragment of the wall." A Normal School has been established for training School Masters for native soldiers.

The miscellaneous work of the year has been important. Measures have been taken for systematic enquiry into the enormous alienations of the Public Revenue in Guzerat. Plans have been under consideration for improving the ports of Guzerat, and measures of irrigation have been considered. The census has been delayed, but in 1851 the population of Bombay was 1,02,65,746 souls, and of Sind 15,71,908 souls. The cotton farms in Broach and Surat have been broken up as failures, but Dr. Forbes in Dharwar has introduced an important improvement on the saw-gin. Attention has been paid to the planting of Babool, Teak and other useful trees, and the stores of timber in the dockyard have been placed under the control of the Conservator of Forests. "Up to the 1st January, 1856, 336 Towns and Villages of this Presidency (of which 292 are in the Sattara Collectorate) were brought under the operation of Act XXVI. of 1850." Very little improvement has, however, been effected in the sanitary condition of the towns, and the popular plans of taxation are exceedingly vague. The Government is of opinion that municipal taxation should be made compulsory. A scheme has been sanctioned for supplying Bombay with water at a cost which will probably amount to 30 lakhs of rupees. The money has been advanced by Government to the Municipality. "The Medical Department of this Presidency consists of 55 Surgeons, including 8 members of the Medical Board and 5 Superintending Surgeons, 130 Assistant Surgeons, 112 Warrant Medical Officers, inclusive of Apothecaries, Stewards and Assistant Apothecaries. In the Subordinate Medical Establishments are included 223 Hospital Assistants and 152 Apprentices." Seven

Assistant Surgeons have been appointed Superintendents of Vaccination and last year they vaccinated 2,58,872 persons. There are hospitals at every Civil and Military station. Each Civil hospital has a dispensary. There are ten Civil Dispensaries.

The Appendices contain the tables summarized above. The most important returns may be thus summarized :—

In the Sudder Court Civil Suits last, ..	2 y. 6 m. 3 d.
Districts and City Judges, ...	1 y. 1 m. 10 d.
Subordinate Judges, ...	3 y. 8 m. 1 d.
Assistant Judges, ...	1 y. 6 m. 13 d.
Principal Sudder Ameens, ...	3 m. 15 d.
Sudder Ameens, ...	4 m. 12 d.
Moonsiffs, ...	7 m. 5 d.
Criminal cases referred to Nizamut Adawlut last,	105 days.
Persons apprehended, ...	58,677.
Convicted, ...	41,330.
Capitally punished,.. . . .	19.

ANNUAL REPORT OF BENGAL.

For 1855-56.

BENGAL, Behar and Orissa, have an area of 2,53,000 square miles. "The existing Civil Courts in Bengal are Her Majesty's Supreme Court and the Small Cause Court at Calcutta; the Court of Sudder Dewanny Adawlut, the Courts of the Zillah Judges, the Principal Sudder Ameens, the Sudder Ameens and the Moonsiffs in the Interior." A Moonsiff has jurisdiction up to Rs. 300, a Sudder Ameen up to Rs. 1,000, and a Principal Sudder Ameen to any amount. "From all decisions of the Moonsiff and Sudder Ameen there is an Appeal to the Zillah Judge. From all decisions of the Principal Sudder Ameen where the value of the property does not exceed 5,000 Rupees, there is an Appeal to the Zillah Judge, where the value is above 5,000 Rupees, the Appeal is to the Sudder Dewanny Adawlut." There is a further or special appeal from all decisions passed by the Judge or Principal Sudder Ameen if the decision has failed to determine all the issues or is contrary to law, or if any document has been misconstrued, if there is ambiguity in the decision, or if there is substantial error of procedure on the face of the record. There are twenty-six Zillah Judges in Bengal, and a Principal Sudder Ameen in every district where there is a Judge. In two districts, Monghyr and Furreedpore there are Principal Sudder Ameens specially belonging to the district. There are 27 Sudder Ameens, 51 Moonsiffs of the first, and 151 Moonsiffs of

the second grade. "The number of Original suits which came before the Courts of Original Jurisdiction in 1855 was 1,15,859. Of these 46,415 were decided on their merits, 548 were dismissed on default; 27,619 were adjusted or withdrawn; leaving 86,337 pending at the end of the year. Of these cases only 2,438 came before European Judges, whilst the great bulk, amounting to 77,084 were solely in the hands of the Native Judges." Of these :—

1 Connected with the land rent, ...	15,702
2 Otherwise connected with land, ...	7,250
3 Connected with debts, wages, &c., ...	46,177
4 Caste, Religion, &c., ...	361
5 Indigo, Sugar, Silk, &c., ...	2,138

71,628

The new law of evidence has reduced the number of suits on bonds. Under that law the parties can be examined, and the money lenders do not like to give evidence in Court, till every other chance has failed. Of the entire number of suits 31,211 were decided in favour of the plaintiff, to 15,204 in favour of defendant, a proof of the general integrity of suitors. The average duration is :—

				1855.		
				Year.	M.	D.
"Sudder Court, ...	..	..	..	1	3	4
Zillah Judges, ...	..	..	..	0	11	8
Additional Judges, ...	..	..	..	0	9	14
Principal Sudder Ameens, ...	..	..	..	1	0	14
Sudder Ameens, ...	..	..	..	0	9	6
Moonsiffs, ...	..	..	..	0	6	26"

Act XVI. of 1853, enlarged the opportunities of appeal to the Sudder Court, and has therefore increased and delayed litigation. The total value of the suits pending on 31st Dec., 1855, was :—

"Original Suits, ...	Ra. 3,57,18,544
Zillah Appellate Courts, ...	" 21,67,274
Sudder Court, ...	" 1,47,96,832

Total, ..., 5,26,77,650

The establishment for the trial of Civil Suits costs about Rs. 20,00,000. The Report analyses the decisions in the Non-regulation Provinces, and proceeds. "The following Courts are established in Bengal for the administration of Criminal Justice:—1. Her Majesty's Supreme Court. 2. The Calcutta Magistracy. 3. The Nizamut Adawlut. 4. The Sessions Judge's Court. 5. The Courts of the Magistrate and his Subordinates." There are 37 districts in 25 of which there is a

Magistrate while in twelve he is also the Collector. There are 38 sub-divisions under Deputy or Assistant Magistrates, the highest punishment which can be inflicted by a Magistrate, is 3 years' imprisonment, by an Assistant Magistrate with special powers, one year's imprisonment, and by an Assistant Magistrate two months' imprisonment. The number of persons apprehended during the year was 81,877. 2,375 had been pending from the previous year, and they were disposed of:—

" Discharged without trial, ...	1,033
Acquitted, ...	24,357
Convicted, ...	52,765
Committed for trial at the Sessions, ...	3,857
Otherwise disposed of, ...	658
Under trial 30th December, ...	2,450"

In the Sessions Court of 4027 prisoners, 1860 were discharged without trial or acquitted. In the Sudder Court, 1,792 persons were brought up, of whom 445 were released. The average duration of cases referred to the Sudder Nizamut is 181 days. The Report analyses the criminal returns of the Non-regulation Provinces and proceeds to mention that the general control of the Police is now under the Commissioners. "There are, at present, 486 Police Darogahs, presiding over a corresponding number of Police Thannahs in the Lower Provinces, so that, in the 37 Districts, the average number of Thannahs is rather above 13. At each Thannah are stationed, besides the Darogah, a Mohurrir or Clerk, and a Jemadar, with ten or twelve Burkundauzes or Constables." The main body of the Police are the village Chowkeedars. The machinery is very inadequate, the following being the return of thefts and burglaries:—

	Number of Cases reported.	Number of Cases enquired into.	Persons arrested.	Persons convicted or committed.	Persons acquitted.	Pending.	Otherwise disposed of.	Value of property stolen.	Value recovered.
Thefts,	13,734	5,110	8,110	3,997	3,813	202	105	7,08,437, 78 078	
Burglaries,	19,787	1,995	2,539	1,375	1,375	103	25		

The result is very unfavourable, one cause is the exceedingly small number of complaints preferred, but this cannot be remedied till the police have been improved. The returns of violent crime are unsatisfactory.

	<i>Murders Reported.</i>	<i>Persons arrested.</i>	<i>Tried.</i>
Patna, ...	46	142	37
Bhaugulpore, ...	37	74	20
Rajshahye, ...	43	134	7

The Sonthal insurrection was the great event of the year, but it has already been specially reported on. The Sonthals, excited by the oppressions of the muhajuns burst into the plains, and plundered many Bengalee villages. A small force of infantry put the rebels to the rout below Rajmehal, and in Bhangulpore, where the alarm was greater, they were checked by the regular troops. A military force in the cold weather swept through the country, and subjugated all who resisted. The Sonthals were relieved from the operation of the regular laws, and a Deputy Commissioner with four Assistants was appointed to conduct the Civil administration.

The Dacoity Commissioner has been assisted at Headquarters by Baboo Chunder Seekur Roy, and at Midnapore by Captain Keighly of the Thuggee Department. In the 24-Pergunnahs there were only 5 cases in 1855, and in four of these cases 40 out of 45 Dacoits were convicted, and in the 5th case the gang after escaping for some months were ultimately brought to justice. In Baraset and Howrah the crime has almost disappeared. In Hooghly it still exists, but the number of cases has sunk from 128 in 1852, and 59 in 1854 to 33. "In Burdwan the crime still exists, but has been reduced. One man in this district had been nine times arrested, five times committed for trial, twice convicted, and always released by the Sudder Court. In Nuddea the crime has been reduced, but the Commissioner's proceedings are not yet matured. In Midnapore Captain Keighly arrested 133 dacoits, of whom 15 have been transported for life and 10 for nine years, 2 sentenced to 15 years' imprisonment, 9 acquitted by the Sessions, 23 released by Captain Keighly, and the remainder await trial. In Jessore dacoity has increased, the Commissioner having been able to do nothing. The total number of persons under trial before the Dacoity Commissioner during the year amounted to 229, of whom 136 were committed to the sessions, 23 were pending before the Deputy Commissioner, 33 were released for want of evidence, 5 died, and the remainder were otherwise disposed of." The Commissioner complains that the differences of opinion among the Judges of the Sudder have not been removed by any authoritative ruling. Conviction or acquittal still depends on the Judges before whom the prisoners are tried.

The Office of Inspector of Jails was created in 1853. In Novr. 1855, Dr. Mouat was appointed, and during the succeeding ten months visited and reported on 45 of the Jails in his charge. In the 4 Jails the daily average of prisoners in custody was 19,589. The entire cost was Rs. 8,14,936. The average total cost of each prisoner was Rs. 42-10. The net profit yielded by manufactures was Rs. 90,859. The discipline of all the Jails

except Alipoor jail is imperfect, the guards worthless, and too many of the prisoners still employed upon the station roads. In-door employment will shortly be provided for all the prisoners. An exhibition of Jail manufactures has been held with very satisfactory results. "The most successful results that have been attained are at Alipore, Hooghly, Howrah and Jessore, where the value of the labour of each convict employed in manufactures has been considerable. The chief manufactures are Paper, Gunny, Cotton Cloths, Blankets, Carpets, Thread, Twine, Articles of Bamboo, Ratan and Reeds, and also Bricks. The largest profits are made in the Alipoor Jail, whilst Jessore and Rajshye exhibit the largest profits among the ordinary District Jails." Classification is as yet almost impossible, for females entirely so. It has been proposed to establish a central Jail for all women sentenced to lengthened terms of imprisonment. The mean mortality among the prisoners has been 10.807, the greatest mortality was at Bhangulpore where the loss amounted to 40.245 per cent. This Jail was very crowded but 24.65 per cent. of the deaths occurred from cholera. "The returns submitted by the Inspector up to 30th April, 1854 show that on that date, out of 9,305 Male Hindoo labouring Prisoners there were 792 who could read and write; and of 5,122 Male Mussulman labouring Prisoners, 241 who could read and write; out of 825 non-labouring Male Hindoo, 222 could and write, whilst out of 457 non-labouring Male Mussulman Prisoners 56 could read and write. Among 595 Female Prisoners, on the same date, there were only 3 reported to be able to read and write."

There are 49 Revenue jurisdictions in Bengal under the Board of Revenue, besides Darjeeling, and the Cossyah hills. The revenue in the Regulation Provinces is permanently settled except in three districts of Cuttack and in Cachar only 5.7 per cent. of the entire demand is realized from the Non-regulation Provinces. The following shews the position of the land revenue:—

	Demand.	Collections.	Remissions.	Balances.
In the permanently settled Districts of Bengal and Behar, Rs.	3,60,54,853	3,33,02,208	3,62,649	23,99,998
In Orissa, ...	22,48,261	16,59,763	60,984	5,27,514
In Assam, ...	10,36,190	8,66,061	19,154	1,50,975
In Chota Nagpore, ...	3,58,012	3,11,086	5,332	41,594
In Arracan, ...	7,42,576	7,33,507	353	8,715
In Cachar, ...	82,154	81,640	283	230
In Darjeeling and the Cossyah Hills, ...	35,211	34,855	297	59
Total, Rs.	4,06,67,257	3,69,89,120	4,49,052	31,29,085

Land Revenue, ...	Rs.	3,69,89,120
Customs, ...	"	1,85,13,118
Abkaree, ...	"	28,01,566
Stamps, ...	"	20,31,214
Salt, ...	"	70,82,295
Opium, ...	"	2,85,42,105
Total,		9,09,59,418
The trade has greatly increased amounting to		
Imports, { Merchandise, ...	Rs.	8,06,08,182
{ Treasure, ...	"	5,81,00,445
Exports, { Merchandise, ...	"	12,60,42,637
{ Treasure, ...	"	1,14,28,310
Total,		27,61,79,574

The total number of ships employed was 1134 with a tonnage of 6,50,320. "The number of British and Foreign ships that arrived in the Port of Calcutta in 1855-56 was greater than it was in 1840-41 by 82.6 per cent. and than in 1850-51 by 47.8 per cent." A bill for the consolidation of the Abkaree laws has been brought into Council. It fixes the rate of duty on Bengal rum at one rupee a gallon, allows spirits to be passed from distilleries under bond, and allows the free export of bonded spirits.

Another bill has been introduced into Council to remodel the laws which regulate the manufacture and cultivation of opium.

In January, 1855, a Director General of Public Instruction was appointed. The University Committee "has now framed a scheme for the Examination of Candidates and the granting of Degrees in the Faculties of Arts, Laws, Medicine and Civil Engineering, and it only remains for the Supreme Government to approve that scheme, and to appoint Senates at the three Presidency Towns for carrying out its provisions. The Legislature will probably be shortly moved to pass an Act incorporating and establishing the Universities." The Presidency College has been placed on an improved footing, and the curriculum arranged with special reference to the examination for university degrees. The law department is efficient, seven students out of eight obtaining diplomas which qualify them to practise in any Court or to act as Moonsiffs. The Medical College is in an equally satisfactory condition, as are also the Mudrussa, Calcutta, and Hooghly Colleges. There are forty Zillah Schools, which are however, susceptible of improvement. A new system of examination has been introduced, which produces greater uniformity. Formerly every Local Committee drew up its own examination paper. The head masters are usually qualified and zealous, but the inferior

masters are indifferent. It may be necessary to set on foot some system for training masters for English schools. There are two institutions for training teachers in the vernacular, and another has been sanctioned. Little has yet been done to educate the mass of the people, but experiments have been tried in different districts. Model schools have been set up in some districts. In others the indigenous teachers receive rewards for the proficiency of their pupils. In others Government teachers move about from one school to another, instructing the teachers in their duty. Ten scholarships of Rs. 4 a month are attached to each district in which these measures have been organized. Grants in aid are also offered to all schools. Up to 1st July, 140 schools had received Grants in aid, to the extent of Rs. 3,734 a month. These schools are chiefly in the neighbourhood of Calcutta. The least effect has been produced in Behar where the people besides being ignorant regard educational efforts as efforts at conversion. In Assam there are 67 Government vernacular schools, with 3,193 pupils. On 9th July, 1855 a notification was issued announcing that no situation of more than Rs. 6 a month would be given to any one who could not read and write. The Department has done nothing during the year in the matter of providing Educational works. The School Book Society, and the Vernacular Literature Society have however been invigorated.

The number of Pilot vessels "for the last twelve months has been 232. Of this number 59 were proceeding with the assistance of Steam and 173 without it." There were few cases of serious damage. The number of collisions has been 65. The strength of the pilot service at the close of the year was 130 of whom 34 are volunteers, 12 and 24 Senior and Junior second mates, the rest being running, Master, and Branch Pilots. Six Pilots have been brought to trial during the year, but only two for want of skill and of these one was acquitted. There are 8 pilot and 2 light vessels. The pilotage receipts amounted altogether to Rs. 6,72,469. The expenditure was about Rs. 6,32,000. There is therefore a profit of Rs. 59,091 for the first time on record. The report mentions that other details connected with the port and proceeds to mention that there are five inland steamers which have earned during the year Rs. 70,385. Their expenses have been Rs. 46,676, shewing a profit of Rs. 23,708.

The total outlay on public works has amounted to Rs. 88,28,216, of this sum there has been expended

On Trunk Roads, ...	Rs. 12,45,259
„ bridges and causeways, ...	57,409
On rivers and canals, Rs. 10,257 on staging bungalows	
Rs. 1,809, on post offices Rs. 17,896, on Electric Telegraph buildings	
Rs. 30,038, on Government houses 30,038. In the judicial	

department the outlay on Jails, cutcherries, and circuit houses was Rs. 2,25,745. Rs. 14,019 were expended on ecclesiastical buildings, Rs. 25,031 on educational structures, Rs. 1,55,802 on cutcherries, opium Godowns, and other revenue works, and Rs. 6,76,691 on embankments. Rs. 22,955 were expended in the marine department, and Rs. 5,04,197 on military works. Of the great works commenced or under discussion during the year, the Arracan road has advanced slowly. The drawings for the Patna road have not been received, though the work was sanctioned two years since. Detailed plans and estimates are being drawn up for the Darjeeling Road. A road from Calcutta to Jessore at a cost of Rs. 4,20,000 has been sanctioned. The Cuttack Road, a road of great importance, requires remodelling, and as the expense will be Rs. 8,93,000, has been submitted to the Court of Directors. Four streams across the Grand Trunk Road remain to be bridged. The bridges over three have been begun, but new estimates have been called for. The plan for bridging the fourth has been sanctioned. Measures have been adopted for controlling the Mahanuddy, which annually floods a portion of Cuttack. The embankments on the right bank of the Damoodah have been levelled, in order to protect the country on the left bank. The experiment has since proved successful.

There are eleven chaplains in Calcutta, and two at Dum-dum. Barrackpore, Dinapore and Dacca are the only other places in Bengal where chaplains have been continuously stationed during the past year. The political relations of Bengal are few. In Cuttack however there are now 16 tributary mehals exempt from the operation of the Regulations. The Rajahs refer all crimes of enormity to the Superintendent. They are inhabited by a wild uncivilized race. Mr. Mills in 1847 urged that education should be promoted and roads opened up, and minor Rajahs educated by Government. Since then, "some steps have been taken in the direction which he indicated. A few Roads have been gradually opened out. Several Vernacular Schools have been established in the two Estates of Banki and Ungool, which have lapsed to Government. Minor Rajahs are also taken charge of by the Superintendent and are educated under his immediate eye at Cuttack. For some time past the young minor Rajah of Nyagurh, one of the largest and best of the Mehals, has been thus under the Superintendent's guardianship and a favourable account is given of the boy's progress in the Superintendent's Report for 1855-56." The tributary Mehals are now quiet, the only points of danger being the Khond Maliahs and Bamunghattee, both inhabited by tribes of whom we know little except that they are excitable. The Khond Maliahs recently

sheltered insurgents from Goomsoor, and it was proposed, as the Boad Rajah seemed to have no authority, to pension him off. The Rajah, however, declined to accede, and it was not considered proper to force the arrangement on him. The Khond Mal was therefore occupied by a body of Police, and its success appears to have been perfect. The people are content and the hills quiet.

An attempt has been made to redistribute and strengthen the military posts bordering on the Naga country on the North Eastern frontier, and to conciliate that powerful tribe by enlisting men from it for the Nowgong Police Militia. The "Independent Tribes, which occupy the impenetrable Ranges of Hills on the Eastern boundary of Chittagong and Arracan, have, after an interval of comparative repose, again commenced to give trouble." An expedition against them was deprecated by Captain Hopkinson, Commissioner of Arracan.

The number of emigrants from Calcutta during the year has been 9,942, of whom 8,325 went to the Mauritius.

The Survey has been completed with the exception of Mymensing, Burdwan, Jessore, and Rungpore, in which the survey is proceeding, and Dinagepore, Dacca, Furreedpore, Sylhet, Tipperah, Bullooh, and Backergunge in which it has not commenced. Orissa and Assam have been surveyed, and Arracan is under survey. The Tributary Mehals of Cuttack are being surveyed, and there will then remain the Chota Nagpore Commissionership, with its area of 60,000 square miles.*

There are forty-three dispensaries in Bengal, seven supported and the remainder assisted by Government. Twenty-three have Sub-assistant Surgeons. During the year they had 7,545 in-door and 1,45,616 out-door patients. "The proportion of Patients absolutely cured is 56.4 per cent. in the case of In-patients and 66.2 per cent. on the case of Out-patients. Including those relieved, the proportion is 65.9 and 80.5 per cent. respectively."

THE NORTH WEST PROVINCES.

In 1855-56.

"Adding Etah and Nagode to the list, there are 51 Districts, under the Administration of the North Western Provinces, with a population of about 35 millions, occupying an area of nearly 1,20,000 square miles, and inhabiting about 1,00,000 townships or villages, (the great majority of which are separate properties),

* England and Wales contain 58,000 square miles.

and contributing a total Revenue, which falls little short of 5½ crores of Rupees, or millions sterling. The superintendence of the Judicial and Revenue affairs of these wide and varied tracts, is exercised chiefly through the Sudder Court and Board at Agra, and, in part, through the Agent to the Governor General in Rajpootana and Central India, as Commissioners, under the Lieutenant-Governor, for Jawud, Neemuch and Nimar, and through the Commissioner who has the duties of Executive Administration in Ajmeer, but is in direct correspondence with this Government. There are two Officers, the Judge at Jubbulpore and the Superintendent at Jhansi who now exercise within certain Districts, the full powers of the Sudder Court in *Civil* cases. From Jawud, Neemuch, Nimar and Ajmeer, references, in all Criminal cases, considered to call for a capital sentence, are made for the orders of the Lieutenant Governor, who usually sends the records of trial for the opinion of the Sudder Court. There is an Inspector General of Prisons for the control of Jails and Jail discipline, and a Director of Public Instruction, with four Inspectors." The public works are under the care of a Chief Engineer, a Superintendent of Canals and Irrigation, and a Superintending Engineer in Saugor. There is also a Deputy Consulting Engineer in the Railway Department. There is a Post Master General for the province. The political business is unimportant, and the Government has no military authority. The Report enters into further administrative details, and observes that Kumaoon, Bhutteeana, Dehra Dhoon, Bundelkund, Saugor, the Nerbudda Valley, Ajmeer, Jawud, Neemuch, and Nemar are Non-regulation districts. In Saugor and Bundelkund a Code simplifying procedure has been introduced. It has been extended generally into Bhutteeana. Kumaoon has Codes of its own. In all these districts disputes as to land are referred exclusively to the Revenue officers. In Neemuch, Ajmeer and Nimar no Courts of civil procedure have ever existed. The Saugor Code is to be introduced there also. In the Courts of the Regulation Provinces business is conducted with despatch, and the number of suits pending has decreased, except in the Sudder Court. The average duration of suits is :—

	1855.		
	Years.	Months.	Days.
Sudder Dewanny Adawlut,.. .. .	0	4	15½
Judges, ...	0	5	21½
Principal Sudder Ameens, ...	0	4	19½
Sudder Ameens,.. .. .	0	3	25½
Moonsiffs, ...	0	2	21½

The number of Regular appeals to the Sudder increases while

the special appeals have risen from 227 pending on 1st Jany., 1854 to 782 pending on 1st January, 1855. The number of original suits in the North West Provinces is in proportion less than in the Punjab. Sixty per cent. of the suits in the North West Provinces were for sums under 50 rupees. The "value of all the suits depending in the North Western Province Courts, at the end of 1855, was (inclusive of land and land rent suits) Rupees 1,20,29,110." It would seem therefore that under a cheap and simple procedure the number of small suits would increase. "The Original suits, decided by Native Judges, were 69,391, to 72 decided by the European Judges." There were 49,732 suits for debts, wages, and personal claims. The Judges are highly favourable to the new law of evidence, which has done much towards securing really just decisions. During the year Mr. Harington, a Judge of the Sudder Court, was deputed to visit several districts, and suggest reforms. The system of fees paid for serving processes has been revised. A certain number of men have been paid by the State to serve processes, and the fees carried to the credit of the State. The Lieut. Governor reports various improvements effected in the position of the Moonsiffs, and expresses his belief that "the character of the Native Judges of these Provinces, as a class, for the discharge of their duties, with honesty, capacity, and diligence, has, of late years, been sensibly raised." He looks, however, to a simpler procedure to conciliate the regard of the people, by placing the Judge in more direct contact with the suitors. He cordially assents to the leading principles of the Draft Code of Procedure, but would add rules precluding the employment of pleaders. He would also enable the Zillah Judges to make occasional circuits through their Zillahs. The Lieut. Governor reviews some other matters of detail, and observes that the introduction of a compulsory registration of documents in Saugor is under consideration.

In matters of criminal justice the returns prove that great crimes are punished with celerity and certainty. Murders spring usually from jealousy, and village quarrels. Murders for money appear rare, and violent affrays are infrequent. "There has been, on a comparison for five years, some increase of Criminal Trials for all kinds of offences, but the cases arising have been, on the whole, promptly disposed of, and the number pending investigation, before all classes of Courts, at the close of the year, was creditably small. In a population, not short of from 33 to 34 millions, the cases of only 2,657 persons, charged with offences, remained undecided. The average duration of cases, which came before the Police, was, including all the Districts, the Hill Province of Kumaon as well as others, 13½ days, and of those in which the Police were not employed, 9 days." The average

duration of cases referred to the Nizamut Adawlut is from 3 to 3½ months. The average proportion of acquittals to trials was in all cases about 36½ per cent. In heinous cases, however, the proportion is higher, rising in Mozuffernugger to 62.05 per cent. "Of 4,619 persons tried at the Sessions Courts, 3,425 were convicted, or had their cases referred, with recommendations of punishment to the Nizamut Adawlut. The number of witnesses summoned during the year was 3,23,346, of whom 2,87,487 were detained but one day, 23,818 two days, 6,989 three days, 5,102 for four days and upwards." This is a favourable percentage. In the Sudder Court three were convicted to one acquitted. The peculiarities of individual minds still however exercise an important influence on the decisions of Indian Courts. Eighty persons have been punished with death during the year.

Arrangements for holding quarterly Sessions at out-stations are highly appreciated by the people. The practice of fining criminals convicted of robbery, fraud or embezzlement has been extended. Checks have been placed on the practice of recording confessions. Two acts of some importance have been passed. "Act II. 1856, which enables Magistrates to take cognizance of all offences affecting the public, without waiting for a private complainant, or requiring a complaint in writing. Act IV. 1856, for the better preventing the malicious or wanton destruction of cattle, (a crime which was found to have been most injuriously prevalent in the Azimgurh District,) by making applicable to it the rules for the enquiry into heinous offences, which it is the duty of the Police to conduct without awaiting the complaint of a private prosecutor." Capital punishment is now inflicted in private, only persons of respectable demeanor and mature age being allowed to enter the enclosure.

The system of Police in the North West Provinces is that of Thannahdaree establishments located at different points. They have been revised, the number reduced, and the pay of the higher grades increased, to the improvement of their efficiency. One-third of the Thannadars now received sixty rupees a month and the remainder Rs. 40. Of the out-post Jemadars one-third receive Rs. 20 a month, and the remainder not less than Rs. 15. The Mohurrirs receive not less than Rs. 10, and one-third of the Burkundazes Rs. 5. The police of the Saugor division will be reorganized from 1st December, 1856. The Tehsildars have been invested with the control of the police. In large and populous cities a force of Burkundazes on superior pay but with no local duties have been placed at the disposal of the Magistrates. They are to be employed in important cases. The responsibility of the Collector-Magistrate for his magisterial duties has been more strictly enforced. Effectual measures have been

taken for breaking up the criminal confederacies. The crime of Thuggee has almost ceased to exist. The dacoit tribes and gangs have been broken up, and the few that remain will speedily be suppressed. Professional highway robbery has disappeared, and poisoning on the high roads has at last ceased. An incessant vigilance has been exercised over the great thieving clans, the Boureaahs, Sunoreahs, and others. The road police of the Grand Trunk Road, formerly a separate establishment, is now part of the regular police.

The existence of female infanticide in Benares has been revealed during the year. In one tribe of Goruckpore Rajpoots there has been no daughter for 200 years, and the very names of the marriage ceremonies are unknown. There are no influential Chiefs to be persuaded, and penal measures, of repression are under the consideration of the Sudder. Proposals for disarming the population have been considered and rejected. It is inexpedient to deprive the people of the means of self-defence. The Magistrates have been ordered to arm and train men selected from the police, that they may have the means at hand of promptly suppressing any local disturbance. Formerly, unless he called in the Military, a Magistrate had no support. In all revenue re-settlements a money salary of Rs. 3 is to be secured to each Chowkeedar, and paid by the Thannahdars.

An Inspector of Jails, in the North West Provinces was first appointed in 1844. His powers were gradually enlarged, particularly over matters of expenditure, and the office is now permanently established. The Lieut. Governor is decidedly in favour of central prisons, and in each of six military stations the Jail is being gradually adapted to hold three thousand prisoners. The stations selected are Agra, Meerut, Bareilly, Allahabad, Benares and Jubbulpoor. The Agra Jail has accidentally become the most important. The management of that Jail is efficient. It secures unitive labour. "The daily average number of Prisoners in confinement throughout the past year has been 22,366, the actual saving during the period as compared with the former rate of charges amounts to upwards of 3 Lakhs of Rupees, and the net saving, after deducting all charges on account of the salary of the Inspector General and his Establishment, has not been less than 12 Lakhs of Rupees in the ten years which have elapsed since the creation of the Office." The health of the prisoners in the Central Jail is as satisfactory as that of the smaller prisons.

"The essence of the revenue system is a minute definition, and a continued accurate record, from year to year, of every existing kind of right or interest connected with land in each village of the Country, and a close supervision by the higher

Authorities, including the Government itself, of the proceedings of the District Officers in regard to these rights and interests, so that no novel incident of tenure shall remain anywhere undetected and unprovided for, and that accessible and prompt means of redress shall be at command against the infringement of every just possession."

Still Government does not attempt to arrest the changes rendered inevitable by the progress of Society. Attention has been called to the frequency of such changes. The Lieut. Governor reviews some arrangements of detail and thus analyses the orders issued for the resettlements. " Their leading points are that the record of measurements is to show clearly all sub-occupancies under other cultivators,—that the record of cultivating rates of rent is to be made with full publicity, and under the personal superintendence of the Settlement Officer, all rents being expressed in one consolidated sum,—that the statement of the village tenures and constitution is to distinguish, plainly, what is a binding contract for the Settlement, from what is merely a record of present facts, and that general speculative provisions are to be strictly excluded from this paper;—that, as there is little doubt that two-thirds is a larger proportion of the real average assets than can ordinarily be paid by proprietors, or communities, in a long course of years, about one-half of the *well-ascertained* net assets is to be considered the ordinary standard of the new assessment,—that due provision shall be made for the payment of the Village Police Chowkeedar through the Thannahs, and of the Putwarry through the Landowners, the incidence of the separate Road, School, and District dak cesses, and of the Chowkeedaree salaries being divided equally between the Owners and the Government,—and that the Representative or Manager on behalf of a Proprietary Community shall receive, for his risk and trouble, a remuneration of 5 per cent. on the amount of Government Revenue for which he is responsible, the number of such representatives being regulated and reduced as much as may be properly practicable in each case." The great measures of the year have been, 1st, the formation of circles of villages with one putwaree or accountant for all. Formerly each village contained a putwaree, but it is only by uniting them that a sufficient salary can be obtained to secure efficient men. 2nd, the putwarees are all to be educated in writing the Nagree character, in surveying by Plane Table, and mapping by Scale. 3rd, The systematic examination of the village papers. These papers have been too often mere copies year after year of settlement papers. The balances for the year amounted to 1.79 on the demands, owing to distress in Saugor and Banda.

No advances as a rule, are now made except for works of

irrigation. The Lieut. Governor notices some arrangements of detail and proceeds to mention that the only dutiable articles on the customs' line of the North Western Provinces are salt and sugar. The salt taxation is in an unsatisfactory condition. "It has been clearly shown, by comparison of the quantity of Salt imported and of the population, that the consumption of the illicit salt per head is half of the consumption in Bengal and Behar." The Government desires to reduce the duty on superior salts to two Rs. a maund, and on inferior salts to Re. 1, thus enabling the taxed to compete with the smuggled article. The per-centage of cost to collection is very high 10 per cent. at productive points. The alteration of the customs' line introduced during the year has been successful, the taxes on superior salts have more than doubled. "The receipts from the Tax on Spirituous Liquors amounted, in 1854-55, to Rupees 20,87,612, having been Rupees 18,29,927 in the four years, from 1844-45 to 1848-49." This revenue grows but slowly. The manufacture of Beer has been tried in the hills. "The net receipts from the Stamp Revenue, were, in 1854-55, Rupees 15,24,594. This is also a slowly increasing item of receipt." The miscellaneous revenue amounting to Rs. 2,70,818 is almost entirely a forest revenue. The "first framework of a wide and efficient scheme of National Education, rising from the ordinary Village or Rural Schools to the very useful Tehseelee Schools, then to the Anglo Vernacular, or Vernacular Zillah Schools held at the Sudder Stations of Districts, and managed for the most part by different Missionary bodies, and ultimately to the Government Anglo Vernacular Colleges, may be said to have been satisfactorily devised, and, in some considerable degree, established." A full report upon the subject given in the Appendix. "It shows the large attendance of Mahomedan as well as Hindoo Pupils at the lower Schools,—the practically useful character of the teaching,—the great results which may be expected from adopting the Hulkabundee Village Schools as a part of the fixed administrative system of the country,—the means arranged for the publication of an enlarged series of school-books,—the extended preference given for all public employments to candidates able to read and write,—the increasing yearly sale of books of instruction,—the growing, though yet comparatively slight, demand for trained students from the Anglo-Vernacular Institutions for posts in the Public Service,—the want of good junior Masters for the Government Colleges, and of qualified Teachers for the Vernacular Schools,—the care taken to secure an improved teaching and use of

English, as a language, in all the Colleges and Schools, elementary instruction in the junior Classes being given in the Vernacular Hindee and Oordoo of the Pupils,—the extension of the Educational staff of the Colleges,—the plans for placing Normal Schools at the head-quarters of each Educational Circle,—the views as to Grants-in-Aid to valuable private Institutions, and as to the completion of the establishments for instruction and inspection throughout the Provinces, and the state and prospects of the special Institutions, the Thomason Engineering College at Roorkee, and the Medical School at Agra.” The entire territory except Nimar has been brought under the general scheme, and the expenditure amounts to Rs. 72,076 per annum. There are now 1353 Hulkabundee or village union schools with 23,686 scholars, 183 Tehseelee Schools with 9564 scholars. Teachers are greatly required and a Normal School has been established at Agra. In Agra and Muttra 95 female schools with 1799 scholars have been established. In some of these schools a condition is made that they shall be visited only by female Inspectors. Upwards of 250 school-books have been printed and published by Government. The Deputy Inspectors have been arranged in grades with different rates of salary. Grants in aid have been assigned to the extent of Rs. 19,500 a year.

The Grand Trunk Road extending with its branches for 837 miles costs Rs. 4,22,000 a year for maintenance. Of this sum about Rs. 70,000 are recovered in tolls. A new plan has been devised during the year for providing supplies for troops and travellers. “The main point in the plan is the location, at each halting place, of a Store House (Burdashtkhan) at which all articles of food, forage and fuel, &c. indented for by the Commissariat Department are retailed at determined moderate prices. The Retailers receive advances from the Government through the Collector of the District, and enter into engagements to supply certain articles at fixed prices for a definite period.” Enclosed places for merchandize, and masonry troughs for horses have also been constructed, and many new wells sunk. The Agra and Bombay road has been improved, and arrangements made for its permanent maintenance by all the states through which it passes. The first division of the great Deccan road to Jubbulpore is to be bridged, and the second division raised and metalled. The Lieut. Governor details other arrangements for connecting the great marts of Upper India with existing routes, and proceeds to mention that the expenditure under the road committees has been

From Road Fund,.....	4,59,761
„ Ferry Fund,.....	4,39,091
Miscellaneous,...	1,70,060
Grants-in-aid from General Revenue,	3,60,275

14,29,187

Nearly 12,000 miles of road have received the attention of the Committees. The Nayool funds are usually expended in cleansing, priming, lighting and draining the principal towns. Meerut has been drained, and Mirzapore is to be. The inhabitants have subscribed Rs. 30,000. In Moradabad, Cawnpore, and Furruckabad similar measures will be adopted.

Water was admitted into the Ganges Canal in April, 1854, and in May, 1855 water was given out for irrigation. The Canal 800 miles long with 1,250 miles of distributing Channels had cost up to 30th April, 1855, Rs. 1,46,00,000, and the annual cost of supervision amounts to Rs. 2,37,376. The profit derived in the first year of its operations amounted to Rs. 64,061. Boats have begun to ply on the Canal. "The Western Jumna Canals form a system of irrigation by which the waters of the Jumna are made to fertilize the otherwise arid and sterile districts of the Delhi territory. The length of the main trunk and its branches extends to 443 miles, and the total expenditure incurred up to the close of the past year, has been 15,74,512 on permanent works, and 60,59,274 on Establishments, Repairs, &c. making a total outlay of 76,33,786. During the 36 years this Canal has been in operation, the revenue derived from it has exceeded 100 Lakhs, the annual profit, in round numbers, having been at the rate of 1 Lakh of Rupees per annum. The direct net income is now about 3½, and the expenditure 1½ Lakhs per annum, and the area irrigated from it 3,75,000 acres. This work is, in many places, merely a revival of the old Mogul Canal in the same part of the Country. Its present length is 137 miles of main, and 37 of branch Channel, with a system of Rajbahas or Water-courses consisting of 500 miles of main and 1200 of Village distribution." The channel however is faulty, and the drainage of the canal spreads malaria. "The expenditure upon permanent works up to the close of 1855-56 had amounted to 12,96,148 Rupees, and for repairs, establishments, &c. to 34,64,526 Rupees, giving a total expenditure of Rupees 47,60,673. The income during the same period has, after allowing 5 per cent. interest upon the capital invested in permanent works, exceeded the outlay by about a Lakh of Rupees, which sum now stands at the credit of the undertaking." The returns of the Rohilkhund canals have varied from 5 to 9 per cent. The canals in the Bhabur or forest waste at the foot of the Kumaon hills are covering the country with fertility.

Several enormous swamps in particular one near Delhi, and another in Pillebheet have been cut up. The Report continues to notice the post office, finance, ecclesiastical matters, inland navigation and matters political but contains nothing on those subjects of interest.

A separate medical officer has been deputed as Vaccinator in Rohilkhund and Kumaon. He has vaccinated 82,287 persons within the year, and he reports that the people are not indisposed to vaccination.

The Government has taken measures to preserve the remarkable monuments of the country from further decay. One of the fine arches of the enclosure round the Kootub Nimar near Delhi has in particular been restored.

The Appendices contain the tables summarized above with some others :—

Area of N. W. P.,	...	...	sq. m.	1,17,601
Population,	..	..	..	3,42,65,876
Land Revenue,	...	...	Rs.	4,59,86,032
Abkaree,	...	...	...	23,02,654
Stamps,	...	...	...	16,32,126
Miscellaneous,	...	...	...	4,39,478
Customs,	..	..	..	62,79,595
Post Office,	..	..	..	12,33,398
Total Revenue,	...	...	...	5,66,39,885
Local Funds,	...	...	..	12,77,132
Expenditure from Funds,	...	..	..	13,34,236

	1853-54.	1854-55.	1855-56.
General Department,	11,62,686 14 7½	11,42,552 4 4¾	13,06,024 5 9½
Judicial Department,	55,22,162 11 4½	38,49,342 7 5½	58,41,128 9 7
Revenue Department,	40,31,868 3 11½	37,80,133 7 7	40,96,559 8 1½
Excise Stamps, &c.,	1,82,819 2 0	2,19,167 9 4½	2,22,794 10 2
Pensions, ...	38,12,150 2 1½	35,25,002 10 10	37,76,487 5 5
Post Office, ...	8,29,814 15 10	9,44,747 0 2	8,89,445 12 4½
Customs and Salt, ...	8,13,146 11 4	8,80,885 4 11	9,05,505 8 9
Public Instruction,	1,30,621 3 8	2,07,042 5 11	3,30,264 7 1
Miscellaneous, ...	2,53,373 6 10½	2,45,272 5 9½	3,72,780 10 6½
Military, ...	93,479 12 11½	92,356 4 7	90,619 5 0
Canals, ...	30,40,436 5 10½	10,63,184 14 5¾	7,47,641 7 3
Total Rupees, ...	1,98,71,959 10 6½	1,59,49,686 11 5½	1,85,79,311 10 0½

THE ADMINISTRATION OF PEGU.

In 1855-56.

“THE country of the Lower and Central Irrawaddy, which was annexed to the British Indian Empire in December, 1852, con-

tains about 32,250 square miles. It extends from the sea, on the South, to a line drawn along the parallel of 19° N. Lat. from the Arracan mountains, on the West as far East as the hills bordering the River Salween. The Province now to be described is situated in the valleys of two rivers, the Irrawaddy and the Sitang. These flow in a general direction towards the South. Their valleys are bounded, on either side, by mountain ranges. The range on the West of the Irrawaddy is that which separates Arracan from Burmah. Its extreme altitude is from three to four thousand feet. That on the East runs midway between the Irrawaddy and Sitang Rivers, and has an altitude not exceeding 1,500 feet. It is the water-shed, from whence tributary streams pour, East and West, into the two main rivers. On the slopes of this central range, the finest Teak forests are situated. It is generally called, by the Burmese, Yo-ma, meaning backbone or main range. On the East of the Sitang the first range of hills, termed Pongloun, 12 to 15 miles distant from the river, has a height of from 1,500 to 2,000 feet. From thence, as far East as the Salween River, is a succession of mountain ranges, the highest of which is 8,000 feet above the sea. The whole of these mountains are covered with fine timber-trees, well adapted for house-building and general purposes." The delta is intersected by salt-water creeks which are the highways of the country. The land is a rich alluvium returning a hundred-fold, even to bad tillage. The races who inhabit it are Burmese, Talaings and Karens, the first being the dominant, and the second apparently the aboriginal race. The Burmese speak a monosyllabic language differing from that of the Talaings. The Karens talk various dialects, but the Baptist Missionaries who have 10,322 converts or 50,000 persons under Christian instruction have reduced the language to writing. The Karens of the plains like the Burmese and Talaings are usually Buddhists. The Karens of the hills worship spirits. The Province has been divided into six districts, Rangoon, Bassein, Henzada, Tharawaddy, Prome, and Tounghoo. The Southern districts were tranquillized after the war in the spring of 1853, but in the North the remembrance that the British had quitted the country in 1825-26 unsettled the minds of the population. These districts also and Tharawaddy in particular were infested by armed dacoits, and it was not till the early part of 1855 that the entire province had rest, and civil administration commenced. "Each township was placed under a Burmese officer, with the designation of Myo-oke, and he was entrusted with moderate Judicial, Fiscal, and Police powers. Immediately below the Myo-oke were the Thoogyees, or Revenue and Police Officers, placed over circles, each circle containing several vil-

lage tracts." Under them a Goung was appointed over every hundred families. They assist in revenue matters and perform the duties of a village constabulary for Rs. 10 a month each. A River police was organized, and three police battalions about 1,000 strong altogether. They have proved useful. Each district was placed under an Assistant Commissioner or Deputy Commissioner. "The control of every Department, Civil, Criminal, and Fiscal, within each district, was committed to the Deputy Commissioner." The Bengal Criminal Code is the general guide, but perjury and adultery are punished.

Soon after the annexation Major W. F. Nuthall was employed to raise the Pegu Light Infantry, and in spite of the objection of the Burmese to discipline, the regiment 500 strong proved itself efficient. The boundary was surveyed, defensive posts established, the population disarmed, and the province finally tranquillized.

The Burmese have a proneness to murder. Like all Buddhists they hold all life sacred, and therefore attach no special value to human life. 37 murders were committed in 1855, but violent crime in the Rangoon district has decreased to half its amount in 1853. There were 79 cases of crime of the second class, and 1407 of the third. Gang robbery is still frequent, 90 cases having occurred. River dacoity is not yet put down, and cattle stealing is very common. Perjury is not common, and the people bungle when they attempt it. Of 8666 persons arrested on criminal charges in 1855, 6,000 were convicted, or 69 per cent. This is before the district Courts. Before the Sessions Courts the acquittals exceed the convictions, 26 persons having been acquitted in one case of gang robbery. No regular jails have yet been recovered, but the jail ementes, at one time frequent, have ceased. The Burmese suffer from imprisonment more than natives of India. "The officers appointed to administer Civil Justice, in the several districts, are Deputy Commissioners, Assistant Commissioners, Tseekays, and Myo-okes. The Myo-okes are empowered to hear all original suits arising within the township to which they are appointed, in which the value involved, or amount claimed, does not exceed Rupees Five hundred." A Tseekay can try up to Rs. 3,000, and an Assistant Commissioner up to Rs. 5,000. "Original appeals are heard by the Commissioner, and also special appeals, on cause being shown." The mode of procedure is that of the Tenasserim Provinces. In the native Courts Burmese is the language of record, in the English Courts English. In Rangoon cases involving less than Rs. 50 are decided summarily. The defendant is warned to appear. If he does not the case is decided against him. This plan gives satisfaction. In Rangoon in 1855, 1873

cases were heard for sums not exceeding Rs. 5,000, 2 for sums between 5 and 20,000, and twelve from 20, to 40,000 Rupees. The amount in litigation in Rangoon has doubled in a year. "In the sea-port towns, the English law governs all cases connected with shipping, freight, and commercial transactions generally, specially those between foreigners." Debtors however are no longer the bondsmen of their creditors, rules for conferring a title to land have been passed, and in the town of Rangoon legal documents must be registered.

It is difficult to ascertain the revenue paid to the Burmese Government by Pegu but it was probably Rs. 15,71,498. The present revenue is Rs. 30,21,062, obtained from

					Third year, 1855-56.		
					Rs.	A.	P.
Land, ...	...	...	...	...	9,35,988	7	5½
Capitation Tax, ...	...	...	...	...	7,36,688	14	5
Fisheries, ...	...	...	...	...	2,72,036	10	0
Salt, ...	...	...	...	...	49,715	8	0
Forest Produce, ...	...	...	...	...	1,650	0	0
Excise, ...	...	...	...	...	1,76,530	10	3
Sea Customs, ...	...	...	...	...	1,70,927	8	2
Inland Customs, ...	...	...	...	...	3,91,888	13	4
Municipal Tax, ...	..	..	..	..	30,878	7	0
Port Dues, ...	..	..	..	..	27,501	3	0
Rent on Building Lots, Town of Rangoon,					9,869	0	0
Timber Revenue, ...	..	..	..	..	80,593	14	9
Judicial Fines and Fees, ...	..	..	..	..	74,313	10	0
Sale of Unclaimed Property, ...	..	..	..	..	11,197	9	11
Bazar Rent, ...	..	..	..	..	15,233	15	5
Ferries, ...	...	...	...	...	933	8	0
Postage Stamps, ...	...	...	...	...	11,750	6	3
Miscellaneous, ...	..	..	..	..	23,364	5	9½
Total, ...					30,21,062	7	9½

The revenue has risen from 72,44,000 since annexation. Rice is the only green product of the country and in 1855-56 1,26,674 tons were exported. The settlement is made with individuals not coparceneries. Each cultivator usually holds from 5 to 10 acres. One-fifth of the gross produce is calculated as the Government share, but the revenue is paid in money. The capitation tax is a tax of Rs. 4 on every married family. It is not disliked, but in the towns it is commuted into a house tax. "The total value of imports and exports of

every description, by sea and river, during the year 1855-56, was as follows :—

Imports,	..	..	..	Rs. 1,26,54,710
Exports,	...	...	..	„ 66,36,785

Total value, Rs. .. 1,92,91,495”

Only one school has as yet been established by Government, but the American Baptist Missionaries have normal schools, and village schools. In the Bassein district alone there are 38 of these village schools with 1008 scholars.

The Chief Public Work commenced is the road from the Bay of Bengal across the Arracan Mountains to Meaday. It is 157 miles long and is passable for 154 miles. Plans and estimates have been submitted for a road from Rangoon to Prome. A line of Electric Telegraph has been extended from Rangoon to Meaday, a distance of 211 miles.

The city of Rangoon has been improved. “It is divided into large blocks of buildings [860 × 800] feet, by streets of 10 feet width, intersecting each other at right angles. Each large block is divided into five smaller blocks, and these again into building lots of five classes.” 1,323 building lots have been sold, which with timber yards and suburban allotments produced 90,000. Rent is received for certain lots amounting to Rs. 9869. 11,00,473 have been expended on the town and Rs. 1,52,649 on the Cantonment. The Commissioner describes certain projects the most important of which is a canal to open out the head of the branch of the Irrawaddy called the Bassein river. Works to protect the land from floods are much required. The town of Menzie has been laid out as the chief town of Irrawaddy about two miles from the Irrawaddy, with which it is connected by a raised causeway.

There is one sea steamer attached to the province, and six inland steamers keep up the communication on the Irrawaddy.

The total civil expenditure of the province is Rs. 17,01,181. There is no prospect of an increase of expenditure equal to the increase of the revenue.

The census shews a population of 5,82,253 souls, but it was very carelessly made, and the Province probably contains a million and a quarter of people. The causes of this strange paucity of population are unknown, but a vast proportion of children die before reaching maturity. Emigrants must be supplied from India, for the Burmese and Chinese bring no women, and the Shans are too far off.

Agriculture is still very rude but cotton is produced in considerable quantities on the uplands. All efforts to introduce

foreign cattle have failed. The indigenous breed of cattle is good, but small, and sheep farms have been successful. The new system of preserving the forests arranged by Dr. Brandis, the Conservator is "*First*.—Trees to be killed and felled under direction of the forest officers, by contract with the inhabitants of the villages adjoining the forests.

Second.—The timber to be dragged and floated to Rangoon on the Government account, either by villagers or others, as may be found most convenient; and by contract, at a fixed rate per tree, whenever such an arrangement can be made.

Third.—Periodical sales of the timber to be held on Government account at Rangoon." Means have been taken to check the destruction of the forests by fire, and nurseries have been established.

The survey has completed 14,000 square miles of country at 7 Rs. a square mile.

The great immediate benefits of the annexation to the people have been the abolition of forced labour, and the opening out of a foreign trade. There cannot be any carrying trade between the sea-board and China, as the Chinese prohibit the entry of manufactured goods, and the export of raw produce. The import trade will not therefore extend beyond the requirements of the population in the countries drained by the Irrawaddy and the Salween. The Appendices contain the details summarized above.

REPORT ON THE HYDRABAD ASSIGNED DISTRICTS.

For 1855-56.

"**THESE** Districts came under the management of the Officers of the East India Company, according to the Treaty concluded by Major General Low, C. B., late British Resident at Hyderabad, on the 21st May, 1853. Final and detailed instructions were issued by the Supreme Government for the guidance of the Commission on the 31st January, 1856. By those directions, the management of the Hyderabad Assigned Districts is required to be as much after the Punjab model as possible, as well in the Survey and Settlement of the Land, as in the Administration of Civil and Criminal Justice, and in the Police Department." Special directions have been given not to resort to a Ryotwarry settlement if a settlement with village coparceneries is possible.

The report contains a table shewing the amount of area, population, and litigation. All the establishments are under revision, no jail buildings have been constructed ; out of 6,257 persons arrested for crime in 1855, 4,655 were convicted 3,510 of whom were fined and discharged. Returns of crime are added but they are declared to be of no value. Thuggee has disappeared. Gang robbery has decreased, but there is still much violent crime.

The Commissioner quotes certain details from the reports of district officers. In North Berar the condition of the cultivators is wretched, but improving. It has been determined to replace the ryotwaree by the village system which existed till the decline of the Delhi power. Proprietors still exist in the villages. The Police is to be improved, a town police has been established, and the house or rather property tax has been replaced by an octroi. Education has as yet been neglected in all the districts, and the only public works completed are the Madras, Masulipatam and Tumulgherry Roads.

The revenue has provided for all the requirements of the treaty. In 1856-57 had the expenditure not been increased there would be a surplus to the Nizam of nearly a lakh a year. The reorganization of the Commission costs however Rs. 3,09,712 a year. The receipts will vary but little till the new improvements begin to tell on the condition of the country.

The remainder of the report is of mere local interest with the exception of a description of " the Natron Lake of Lonar, occupying what by some Geologists is supposed to be the centre of an extinct Volcano. The depression is a singular and unexpected one and forms a curious interruption to the generally undulating character of the District. The Lake is 510 feet below the level of the surrounding ground, its outline is rounded, the circumference being about three miles in extent. The sharp edge of the excavation is five miles round ; the inner surface of the excavation rises abruptly at a high angle, and its surface is covered with luxuriant vegetation. The Lake, a sheet of still water, green from *confervæ*, emits an intolerable stench of sulphurated Hydrogen, especially during the heat of the day, when bubbles of that and other gases rise freely to the surface. The mud close to the margin of the Lake is thick, black and tenacious from the mixture of Resin, Natron, and Alum. At two points about $\frac{1}{2}$ mile from the margin distant from each other about $\frac{1}{2}$ a mile, are two saline springs, and it is supposed that the Muriate of Soda in these uniting with the Carbonate of Lime, found abundantly in the Lake water, as well as in that brought from the surrounding water shed, causes a mutual decomposition, Carbonate of Soda and Muriate of Lime being formed. Be

that as it may, the deposition of Natron in large quantities is constantly going on, and has for many years formed a source of profit to Government. Of this Salt, six principal varieties are recognized by the Natives. These vary in purity, and consequently in value; the best varieties contain upwards of 50 per cent. of the neutral Carbonate of Soda. In North Berar, lying obliquely between Akolah and Thoogoon and upon both sides of the River Poorna, lies a tract of Country about 50 miles long by 30 broad, in which are found numerous Brine Wells, from which Salt in large quantities, but not of first-rate quality, is obtained." These wells yield an inexhaustible supply of salt. The Appendices contain the usual statistics and a correspondence from which it appears that cotton, equal to Georgia upland cotton, can be grown in Hydrabad.

THE STRAITS SETTLEMENTS.

In 1855-56.

"THE British Settlements in the Straits of Malacca are three in number, *viz.* Prince of Wales' Island, or Penang, Malacca and Singapore." The British flag was first hoisted in Penang on 11th August, 1786. Various bits of territory were acquired before 1830 when the whole settlements were placed under the Government of Bengal. In 1852 they passed under the Government in India. "Like the Presidencies of India, the Straits' Settlements are under pure English Law, administered by a Recorder's Court. This single Court, extending its Jurisdiction over three distinct and isolated Settlements, two of them nearly 500 miles distant from each other, was constituted by Royal Charter dated the 27th of November, 1826. This Charter provides that the Court shall consist of the Governor or President, the Resident Councillor of the Station where the Court shall be held, and of one other Judge to be called the Recorder, who shall be a Barrister of five years' standing." This arrangement was found inconvenient, and in March, 1855, two Recorders arrived with a new Charter. The new Charter however beyond appointing an Additional Judge was no improvement. The want of a Small Cause Court is very severely felt. Criminal justice is administered by the Recorder who holds a Session thrice a year at Penang, three times at Singapore, and twice at Malacca. The Court of quarter Sessions is held once a

fortnight and consists of one of the Resident Councillors and one Justice. "At each Station, one of these Justices is a salaried Officer of the Government and an Assistant to the Resident who is appointed the Sitting Magistrate." The Police have no legal existence there being no Police Act. The expense is defrayed from a municipal fund. The police is not thoroughly efficient, though that of Singapore was brought by the late Superintendent into excellent order. Justice is much impeded by the secret Chinese societies which though not opposed to the Government are opposed to the course of justice. They are powerful and unscrupulous and obstacles are removed by menaces, bribery or murder. Two of their oaths threaten any one who does not resist justice or who accuses the wife or maid-servant of a member. It seems doubtful whether these societies can be put down by legislation.

The Revenue of the Settlements is derived more from the vices than from the industry of the people. The excise farms of Penang during the past year brought in Rs. 1,82,520, and the rent of land in Penang and Province Wellesley Rs. 51,259, judicial fees and fines produce Rs. 21,533. The total revenue of Penang amounted to Rs. 2,63,769. The Revenue of Malacca from excise and the tenths on tin is Rs. 20,585. The total Revenue of Singapore is Rs. 5,96,365. Neither in Malacca nor Singapore is there any land revenue in the Indian sense. Titles in Malacca are complicated by the fact that the Dutch proprietors sold their rights to Government so long as the British flag should fly over Malacca. Perpetual sale is therefore out of the question. The expenses amount to Rs. 14,13,757. "The Straits' Settlements pay their own local expenses, they pay the expense of maintaining a body of 3,800 Indian convicts, and they contribute a sum of near a lakh and a half of Rupees towards the payment of the Military Force from Madras forming the Garrison." The Netherlands Government has permitted nutmeg seed to be obtained from Banda. The nutmeg of the Straits has deteriorated, and an infusion of fresh seed from the parent soil may revive it. The Municipal receipts for the three Settlements amounted to Rs. 2,38,047 and the Municipal expenditure to Rs. 2,27,252. "There is every reason to hope and to expect, that under the new Acts, the general funds of the Committee will be considerably augmented, the Police be better organized, and the Conservancy of the Towns more stringently attended to." The population is described in an unpublished Report by the late Registrar of the Court. Province Wellesley contains about 1,20,000 inhabitants of which very few are Europeans. They consist of all Asiatic races, the women alone being exclusively Malay. The Chinese are most numerous, and next the

Mussulmans from India At Singapore there are 70,000 persons of whom the Europeans number 250 males. The paucity of women in all three settlements is incredible, whole villages being often without a woman. In Malacca, there is this peculiarity that although the Asiatics who inhabit it are of all races, Malacca is their native place, and they have dwelt there for generations. It seems probable that the first emigrants were forcibly retained by the then rulers of Malacca.

There were on 30th April, 1856, 3845 convicts in the settlements. "On arrival they are placed in the 4th class and are kept at work on the roads, in irons, for eighteen months, when, if their conduct be good, their irons are taken off, and, at the expiration of eight years, they are removed to the 2nd class, and gradually rise to become officials, under the designation of Orderlies, whence they may rise to be Peons, Jemadars, &c." The system works well, as there is nowhere to go but to the jungle. The convicts execute all public works, and may therefore be useful. The expense of keeping them is more than repaid by their labour. The short term convicts are troublesome but not the life convicts. The Chinese convicts it is impossible to secure, if they have friends outside to assist them. The port of Singapore is free, and last year 3,659 iron guns, 6,15,165 lbs. of gunpowder, 1,699 cwt. of iron shot, 15,259 muskets, 5,230 musket locks, 101 revolvers, and 2,559 pistols were imported. This importation affords great facilities for piracy. Four junks examined were found to be very heavily armed, but they were permitted to depart.

The total value of the trade of the three settlements in 1854-55 was Rs. 10,05,74,333. The chief export of Penang is sugar and spice. Malacca exports tin to the value of Rs. 11,15,674 and Singapore pepper and gambier. The importance of the trade depends in the opinion of the Governor on the freedom of the port.

THE POST OFFICE.

In 1855-56.

THE uniform low postage rates came into operation on 1st October, 1854. Every post office with a few exceptions is now in charge of a Resident and responsible Post-master. Inspecting Post-masters are usually chosen from among the Post-masters. There are 9 inspecting divisions in Bengal, 10 in Madras, 9 in Bombay, and 12 in the North West Provinces. There are 753

post offices, and 61 receiving houses. The mails are conveyed by train, by cart, on horseback, or by runners, according to local circumstances. The maximum rate by carts is 7 miles an hour, and by runners 6. Dr. Paton remarks on some of the causes of detention, and observes in August, 1854, there were received 15,90,223 covers, or 1,90,82,676 a year while in 1855 there were 3,02,10,792, and in 1856, 3,37,58,076. The increase under the new system is 76·9 per cent. The proportions are 1,66,74,732 of paid letters to 79,12,056 bearing. The Postal Commissioners believed that an increase of 147 per cent. must take place before the postage revenue will recover itself. The increase of chargeable correspondence is already 101·9 per cent. "The number of newspapers, which passed through the post office, in April, 1855, exceeded the number in August, 1854, by 1,05,458, or 83·4 per cent., and the number, in April, 1856, exceeded that, in April, 1855, by 28,986, or 12·5 per cent." The number of service letters in 1856 is estimated at 58,20,408, against 50,81,904 under the old rates. The number has increased under the new rules 14·4 per cent. though the privilege of franking is withdrawn from upwards of a million of persons. Dr. Paton accounts for it by the increased activity of all public departments. In 1856 chargeable parcels were transmitted at the rate of 2,99,076 a year, and service parcels of 1,78,272. The service parcels increased by 81·6 per cent. The estimated number of books for 1856 is 67,248 imported, and 1,05,456 Indian. The number has increased 29·3 per cent. in the year. The increase since the reduction of rates is 477·06 per cent. The estimated number of registered letters is 8,34,908, the increase in one year being 49·4 per cent. The estimated number of chargeable letters sent by the district post is 19,18,344, or an increase of 27·7 per cent. on the number last year. 1,12,872 newspapers are thus sent in a year. The estimated number of bearing letters in 1856, is 79,12,056. "In April, 1855, the paid exceeded the bearing letters by 290·7 per cent.; in April, 1856, the paid exceeded the bearing by only 110·7." The cause of this increase in bearing letters is the distrust of the post office. Only forty-four instances of robbery have occurred, though more articles of value are transmitted through the Indian post office than through any post office in the world. There are 22,644 persons employed in the post office department, and 4,215 for the bullock train. This train proceeds 1,562 miles, and the profits last year were Rs. 25,483 in Bengal and Rs. 1,16,530 in the North West Provinces. So complete is the confidence of natives in the train that large sums of money were remitted by it.

The value of stamps sold during the year was Rs. 8,57,007.

The receipts in 1849-50 were Rs. 19,27,358. The receipts in 1853-54 were 19,92,870. The receipts in 1855-56 have been 16,25,488. "The Postal Commissioners calculated that, if no increase of correspondence took place, the utmost loss that the post office could suffer would be Rupees 9,12,007-7-11." The newspaper postage has almost reached its old rates so; have the receipts on parcels. The following table shews therefore the financial result of the reform:—

PRESIDENCY.	Net receipts.	Deduct Gross Disbursement in 1855-56.	Deficit.	Official Post- age.	Surplus.	Net Deficit.
Bengal, ...	5,37,645 11 10	8,12,197 1 4	2,74,551 5 6	3,95,586 10 9	1,21,035 5 3	0 0 0
Madras, ...	2,99,261 9 10	5,56,285 2 2	2,57,023 8 4	2,72,969 7 0	15,945 14 8	0 0 0
Bombay, ...	9,00,960 4 7	8,36,762 6 0	5,35,902 1 5	3,86,243 13 0	0 0 0	1,49,658 4 5
N. W. Provinces, ...	11,77,214 8 5	12,50,392 6 7	73,177 14 2	5,65,862 8 0	4,92,684 9 10	0 0 0
Total, ...	28,14,989 2 8	34,55,637, 0 1	11,40,654 13 5	16,20,662 6 9	6,29,865 13 9	1,49,658 4 5
					Net Surplus, ...	4,80,007 9 4

From the gross receipts Rs. 2,25,000 must be deducted for steam postage, and the deficit will then be Rs. 11,40,654. If however credit be allowed for the official postage the surplus is Rs. 4,80,007. In 1854, the steam postage being deducted and the official postage credited the net surplus was 7,71,089. The Appendices contain the details summarized above.

THE ELECTRIC TELEGRAPH.

For the last quarter of 1855-56.

THE Appendices to this report, which is occupied with small details, shew that Rs. 1,74,168 were received for paid and Rs. 53,531 for service messages during 1855-56. The number of messages was 39,950 of which 11,790 were sent by natives. There were 331 complaints in 275 of which the money was refunded.

KATTYWAR.

Bombay Records, No. XXXIX.

ON 18th June, 1804, Lieut. Col. A. Walker, Resident at Baroda, reports on the condition of the provinces recently acquired from the Peshwa and Gaekwar. The pergunnah of Neriad "contains about 1,14,135 beegas of land, of which 69,504 are in cultivation; 15,142 waste, but arable;" and the remainder useless. The Resident gives some details of the tenures, and observes that half the produce belongs to the Sirkar, and the other half to the ryot. The ryot however pays 2½ seers out of every maund of grain to village officers, and to the Sirkar. Moreover, the ryot pays 2 Rs. a beegah for land of the first quality, 1 Re. for the second and 8 annas for the third. The Mehwassee villages pay a fixed sum. "The principal produce of this district consists of tobacco, rice, zinglee, jowaree, bajree, mutt, and kodra. There is likewise a little wheat, and cotton, and different kinds of pulse." The Resident describes the local officers, and mentions that the Patels fix the jumma bundee. Pergunnah Matur contains 71 villages, and is under the system which prevails in Neriad, but the revenue is paid in specie. Tobacco lands pay Rs. 10, 12, or 15 to the Sirkar. The Resident

gives the names and pay of the local officers, who are supported by jaghires, and enams. Pergunnah Mondeh contains 92 villages, and the revenue system is identical with that of Matur. The produce consists of "tobacco, mutt, bajree, rice and bowta." Rice costs Rs. 2 a maund. The fort of Kaira is in Matur surrounded by a jaghire of thirty villages cut off from the pergunnah. The uncultivated portion of the district is given up to cattle. The proprietor takes half the produce or a rent in silver. The tax amounts from Rs. 4 to Rs. 12 per beegah.* Napar is near Neriad, and "contains 22,933½ beegahs of land, of which 19,445½ are under cultivation, 1,979 waste, but arable, and 1,509 supposed incapable of cultivation, being occupied by houses, tanks, wells, roads, &c." In practice the Sirkar receives half the produce, and 2½ seers out of every maund of the remaining half. The revenue is levied just after reaping.

The chouth of Cambay is a proportion of the revenues payable to the British. It involves the right to appoint a Collector but no territorial possession. The rents of Sumaood in Pergunna Kuree have been regularly paid.

Pergunna Beejapoor contains 70 villages, but much land is waste. The revenue is paid in grain or specie, the produce being equally divided. There is a tax of Rs. 15 on every plough. The soil is not good, and the revenue is paid by instalments. Dholka, the most important Pergunnah, contains 200 villages and a great city. In the Mehwas villages the revenue is collected by an armed force, and one landholder the Kounte Rajah keeps 2000 sebundeas in a fortress in the jungle. The Grasias are connected by relationship and we have no right to interfere in the internal administration. The town of Dholka contains 50,000 people chiefly turbulent Mussulmans. They injure the public revenue, but nothing can be done without a military force. The taxes are levied by an annual assessment the half produce going to the Sirkar. Wheat is the principal produce. The revenue is received by instalments. Pergunna Dundooka contains 103½ villages. All but one pay a contribution but owe no obedience. In the one Kusba not alienated the Sirkar receives six maunds to the ryots' nine. The soil is inferior. In Rampoor also only one Kusba and three villages belong to Government. The rest is held by independent chiefs, who have troops and forts. The Moguls used to overawe Kattywar from Rampoor. The independent chiefs pay a small tribute in money. In Government villages rent is received in kind. The amount to be paid is regulated by local rules, and varies according to crop. In Gogo the

* Size of beegah not given. It is not the standard beegah of course.

Government possesses the town only, 145 villages out of 148 being under independent chiefs. Gogo is a great commercial mart. The head of the independent chiefs is the Raja of Bhow-nugger. He has 7000 infantry and 700 cavalry. Most pay to the Marhattas, and to the Nuwab of Joonugger as well as to the British. The actual jumma of all these Pergunnahs amounts to Rs. 12,92,936 a little in excess of the revenue ceded to the Company. These revenues may be doubled in four or five years by bringing waste lands into cultivation. The proprietary right in the soil vests in individuals as well as in the Sirkar. The Grasias and Kooles who are aborigines hold by prescription. Their rights have outlived the Mussulman dominion. In undivided inheritances all must consent to a transfer. The second kind of property is derived from grants from the sovereign. The proprietors usually assess at lower rates than the Sirkar. The cultivator has a kind of right by prescription. Ejectment would be considered oppression. The village officers called usually Desaees, Patels, Mozoomdars and Tulatees represent the villagers, and are paid by exemptions and fees. There are Zemindars, but they are in reality Enamdars. The land and transit customs amount only to Rs. 1,04,000 a year. Cavalry are required to realize the revenue. The creed is the same as that of India generally. The Grasias, Kooles and Bheels are all treated by the Marhattas as outcasts, and will live quietly under the Company's Government.

On 10th May, 1804, Mr. H. W. Diggle reports that in these districts the Grasias are independent while the ryots look up to the Government. Almost every Grasia's village is a fortress, and his dependants acknowledge no other lord. As administrators of justice the Grasias are venial, but there is a sect called Bhat who stand security in all cases, and sit in dhurna till the obligation is fulfilled. It is always fulfilled, even if fulfilment involves the sacrifice of life. The regular administrators of justice to the ryots are the Komavisdars or farmers of the revenue, but both Grasias and ryots resort to arbitration. There is in fact no rule, no justice, and no equity in this part of Guzerat. Crimes are compounded for by a fine, and among the Grasias murder is usually avenged by the relatives. It is a point of honour among the Grasias to give protection to the perpetrator of a crime. Suspicion is sufficient to justify torture. Mr. Diggle recommends a regular Court for the ryots, and thinks the Grasias will gradually recognize its advantages.

On 28th March, 1805, Lieut. Colonel A. Walker again reports that under the Marhatta Government all crime was commutable for money. The Patels were the instruments of every oppression. The people distrusted the Gaekwar's Government, and in

one instance demanded from it every year a hostage. The administration of justice was entirely neglected. No power was entrusted to natives. The native officers were always controlled by Marhattas. Colonel Walker again describes the power of the Bhats, and notices some social differences in the districts. Under the Mogul Government, the Grasias were stripped of three-fourths of their lands, which they received again to cultivate for the Government. Colonel Walker considers that the revenue should be collected from the ryots or the Patels. Under the Marhatta Government the Kusbatees or soldiers of fortune leased the villages. These leases were renewed, and the tenants though only temporary often sold them. Other villages were under Mahajuns or Manoodars. Both should be abolished. The Resident continues to describe the tenures admitting that the principle of the Marhatta Government was to take half the produce, but observing that in reality a new settlement was made every year. On 20th July, 1806, Lieut. Col. A. Walker reports on Dundooka, Rampoor and Gogo. He enters into official details, and observes that these districts never yielded so much under the Marhatta Government as they now do. The Government must pursue any enquiry into titles with great caution. The revenue derived from the Grasias is tribute not revenue and can only be increased by force. An investigation into the profits of village officers would be expedient, but the substitution of salary for fees should be gradual and quiet. The Resident discusses some reforms proposed by Sir Miguel deSouza, and the rank and titles of different Grasias. Generally speaking they all possess the power of life and death. Formerly they enjoyed the right of making peace and war. "It would, however, be extremely desirable to dissolve these discordant authorities, and to consolidate all the inferior separate jurisdictions under the Company's power." Col. Walker considers reform possible, but it must be slow and gradual. He encloses a memorandum from Amrut Lall, Agent for the Peshwa's Government, of little interest. He confirms the account of the independence of the Grasias. Some translations given from a work by the Dewan of Ahmedabad also confirm this theory. On 23rd Jany. 1804, Major A. Walker, Resident at Baroda, reports several Chiefs of Kattywar requested the protection of the British Government. The Resident recommends that the British relations with these States be improved, and that two corps with a proportion of artillery be sent into Kattywar. On 22nd February the Government replies that it will be pleased with acquisitions fairly obtained, but that care must be taken not to involve Government in inextricable intrigues, and not to commit injustice. On 14th March, Lieut. Col. Walker replies that the object of the Chiefs is to secure themselves

from further exactions, and that with the exception of the payment of tribute they are independent, and at liberty to form relations with any one they choose. He thinks the rights of all parties should be secured by the Company's guarantee, and if necessary maintained by force.

On 14th February, Lieut. Col. A. Walker submits a memorandum on Kattywar. In it he says the subject of consideration comprises "1st, to assist the Gaekwar Government in recovering its tributes, or military contributions under the name of Moolukgeeree; 2nd, to effect an establishment in Kattywar; and 3rd, to take under our protection several princes, who have preferred applications for that purpose." All these advantages must be obtained by force. On 9th May, 1807, the Resident informs Government that he has addressed the Chiefs of Kattywar informing them that the Moolukgeeree jumma-bundee must be paid to the Gaekwar, and that without the annual despatch of an army. Therefore the armies of the Company and of the Gaekwar are approaching Kattywar. On 3rd August, 1807, the Resident reports that the chiefs have submitted. On 19th August, the Government expresses its satisfaction at answers "such as you will, it is trusted, be able to mature into a permanent adjustment with them, for the future punctual payment of their tribute to the Gaekwar State, under the instructions with which you have been already furnished."

On 7th October, 1807, the Resident reports his proceedings with relation to the Chiefs of Jhalawar. Jhalawar, borders on the Western districts of the British territories and those of the Gaekwar. He describes the "Bhyads" or Grasia undivided families, and the securities it was customary to take from them. "In most parts of Jhalawar the cultivator proceeds armed to his ground, and each village has a high tree, or other elevated station, where a villager keeps watch, to announce the approach of horse, upon which the cattle are driven off from the fields, under shelter of the village." He describes the horsemen who create this terror, and who are wandering bands under different names resembling the Pindarees. The plan adopted to secure the Moolukgeeree revenue was to take bonds from the chieftains under the security of a Bhat.

On 11th November, 1807, Lieut. Col. A. Walker, reports on Muchoo Kanta. "The district of Muchoo Kanta is thus called from being situated on each side of the river Muchoo, in the western peninsula of Guzerat. It is bounded on the north by the Runn, which communicates with the Gulf of Kutch, and which separates it from Waghur; on the east by the river Goradroo; and on the south and west by the course of the Adjee river, which discharges itself into the sea in the Talooka of Balumba."

Kayajee, a member of the Kutch family obtained Muchoo Kanta to himself. His eldest son settled in the town of Moorvee. Two others settled in Mallia, and other villages. The owner of Mallia invited the Meanas, a race of thieves to settle in Mallia. A quarrel broke out therefore between him and the Moorvee Raja, the head of the family, which became a feud. In 1303 the Gaekwar sent an army to obtain his revenue then six years in arrears. He obtained three years, and after a variety of intrigues the Chief of Moorvee engaged to pay five lakhs of Koorees. Some of this money remained unpaid in 1807. The Resident acting in concert with the Gaekwar therefore induced the Chiefs to come to an accommodation, ordering them to pay the Rs. 3,22,000 by instalments. The demand from Mallia was also reduced from 2,83,255 to 1,00,000 koorees to be paid in three instalments. The bonds are given in full in the Appendix.

On 20th November, Lieut. Col. A. Walker, reports on the condition of Nowanugger.

Jam Jessajee, the Chief is oppressive, and possessed himself without right of the fortress of Kundorna Rana Ra belonging to the Chief of Porebunder. The Jam refused restitution and collected forces. The British detachment and the Gaekwar's troops therefore marched against him. After some negotiations they advanced on the capital. The Jam still refused to make any concession. The Resident therefore resolved to place Kundorna in the hands of its legitimate owner, and compel the Chief of Porebunder to come to an accommodation.

On 12th December, 1807, Lieut. Colonel A. Walker reports on the condition of Gohelwar. After describing the origin of the State now called the State of Bhownugger he remarks that the Chiefs of this family have suppressed piracy, have rendered Bhownugger an emporium of trade, and have agreed to make an accommodation with the Gaekwar.

On 16th December, 1807, Lieut. Colonel A. Walker reports on Porebunder. After recounting the history of the State he remarks that the State possesses a standing militia called the Sword of the State, through whom public opinion is conveyed. They are almost exempted from taxation. The Raja agreed to the settlement with the Gaekwar, if Kundorna were restored. It was restored and the agreements were signed.

On 12th January, 1808, Lieut. Colonel A. Walker reports on Soruth. It contains Diu, and Jafferabad, valuable ports. The Resident gives in detail the history of the reigning family, and observes that the Nuwab agreed to the new and permanent arrangements for the payment of the Gaekwar's revenue.

On 25th January, Lieut. Colonel A. Walker reports that the

Jharejas of Hallar have submitted to the terms imposed on the other Chiefs, they were compelled to refund the value of their robberies, and solemnly to renounce the practice of infanticide. The country was found frightfully disorganized.

On 7th February, Lieut. Col. A. Walker reports on the condition of Kattywar Proper. "The division of Kattywar Proper is bounded on the south by Babriawar; on the east by Gohelwar; on the west by Soruth and Hallar; and on the north by Jhallawar." The people claim an origin from Khat, an individual created by Kurrun, vizier of Doorjoodan to steal some cattle. His descendants received the right of stealing cattle without sin. They emigrated from Powar, and after adventures protracted for centuries they in the decline of the Mussulman power became powerful in Guzerat. There some of them renounced their predatory habits, but the majority are still thieves. "The Kattees are not numerous, and their mode of life is unfavourable to population. They are formidable by their boldness and dexterity, but in their great incursions they supply their want of numbers by hiring the horsemen of the country. They pay their mercenaries liberally, and reward those who may suffer, but never allow them a share of the booty; the profit and loss of the adventure are their own. Some of the Chiefs live in forts or castles, in which they secure their plunder, and retire on any external danger." Their principal booty consists of cattle. They agreed to pay the revenue regularly. In an Appendix, Col. Walker gives some further facts respecting this strange people. Their most distinctive customs are these; a Kattee rarely exceeds two wives, though polygamy is permitted, widows remarry, and the widow marries her husband's younger brother. "When a Katteennee, the mother of children, dies, the nearest relations of the deceased take away the children from their father, and carry away the whole of his moveable property for their use." They are drunkards. "If any Kattee is killed in battle, the whole of the property acquired on that trip is given to his heirs." They consider it disgraceful to carry fire-arms. They respect their Brahmins who insure property against their attacks.

On 15th May, Lieut. Col. A. Walker reviews the Company's proceedings in Guzerat. "In the early part of our connection with the Gaekwar Government, when the Honorable Company began to manifest an interest in its affairs, it was soon discovered that a considerable part of the resources of this State depended on a realization of its Moolukeeree revenues from Kattywar with punctuality, while the large arrears actually due at that period rendered their recovery an object of no common importance." The Resident describes at great length the proceedings of the armies by which these revenues were collected,

and observes that the arrangements previously detailed have suppressed great enormities. Col. Walker recapitulates previous statements as to the state of the country, the authority of the Bhats, &c. and proceeds to say that the march of the Company's troops excited extravagant ideas. It was at first thought that the Company had come to displace the Gaekwar. Then that it was on a plundering expedition, and several Chieftains sent in offers to help, extolling their own merits as successful thieves. Then every petty Chief fancied he was to get back all his family had ever lost. These extravagant expectations were repressed, but the armies sometimes interfered to check new and great oppressions. The perpetual settlement was fixed thus :—

<i>Divisions.</i>					<i>Perpetual.</i>		
					<i>Rs.</i>	<i>q.</i>	<i>r.</i>
" Jhalawar,	...	...	...	...	2,67,992	2	0
Muchoo Kanta,	...	...	...	...	60,000	0	0
Gohelwar,	..	..	..	..	1,10,582	0	0
Burrada,	..	..	..	..	30,002	0	0
Soruth,	...	...	...	...	1,08,209	0	0
Kattywar,	..	..	...	...	1,08,018	2	0
Hallar,	..	...	..	..	3,00,078	2	0
Total Rs.					9,79,882	2	0

This is a reduction from the assessment of 1803.

The whole population is trained to arms. The country is covered with forts. The Chiefs have many mercenaries, but the Nuwab of Joonagur, and the Chiefs of Nowanugur and Bhow-nuggur, are the only Chiefs who can produce armies. The country is inexhaustibly rich, and produces all its own supplies. The result of British interference has been to produce engagements. "The objects of these engagements are simple. They guarantee to the Gaekwar Government the punctual payment of the tribute which has been determined under our mediation. The Chieftains of the country are bound to refrain from depredation, and those mutual aggressions and acts of violence which formerly kept the country in a state of warfare and devastation. The Petty States on the sea-coast are also bound to relinquish piracy, and have given up the right to wrecks that may happen within their jurisdiction. The Jhareja and Jetwa Rajpoots have also solemnly abrogated the inhuman practice of female infanticide. In return for these concessions, we have guaranteed their country from oppression, and relieved it from the injuries it sustained from the annual circuit of the Moolukgeeree army. It must also be observed, that these engagements have completely changed the nature of the connection between the Gaekwar Go-

vernment and the Chieftains of Kattywar. The rights which the Gaekwar Government possess in Kattywar are not, as formerly, the mere superiority arising from more powerful resources. These rights are now solemnly and formally recognised by the voluntary acts of the Chieftains of that country themselves, and rest upon the same basis as those engagements which connect more civilised States with each other." It is advisable, to secure these engagements, to station a body of Gaekwar Horse in Kattywar. On 30th April, 1808, Lieut. Col. A. Walker reports his opinion in favour of transferring the Gaekwar revenue of Bhownuggur to the Company. "The several advantages which this revenue possesses over every other cession of the Gaekwar or Peshwa, in being realised without expense, and in consolidating in the Company's hands the several dependent claims of the Peshwa, the Gaekwar, and the Nuwab of Surat, over Bhownuggur, have already been set forth and admitted in various letters wherein this subject has been agitated. The general superintendence which the Company have acquired over the Raja as a tributary, and the control of a valuable and extensive line of sea-coast, afford both the right and the means of regulating the conduct of the Raja in every affair that bears relation to foreigners, or is inconsistent with our policy." The revenue amounts to Rs. 74,500, which by the difference of exchange rises to Rs. 79,699. He also recommends that the Raja should be relieved of the security of a Bhat. On 23rd July the Government of Bombay accede to these recommendations. On the 7th December the Resident requests that the Secretary "would have the goodness to inform the Honorable the Governor in Council that all the rights, either of the Peshwa or the Gaekwar, over the Raja of Bhownuggur, are now concentrated in the Honorable Company, in virtue of the Treaty of Bassein, and of the recent cession of the Gaekwar Moolukgeeree demands on that Chieftain."

INFANTICIDE IN KATTYWAR.

Bombay Records, No. XXXIX.

ON 27th May, 1805, Lieut. Colonel A. Walker, Resident at Baroda, reports that the Chiefs of Nowanuggur and Dherol put their female children to death. On 6th June, the Government of Bombay called on the Resident to enquire if the practice could not be prevented. The Resident was directed to secure the services of Soonderjee Sewjee as Agent for the suppression of so detest-

able a custom. The Resident accordingly enquired of Soonderjee Sewjee the reason of the custom, and was told that "the drowning of the daughters of the Jharejas proceeds from this cause:—In this country there is no one who can marry into the tribe of Jharejas, wherefore they drown their daughters; and there may be annually five or six hundred births among the Jharejas, inasmuch as the Chieftains of Moorvee, Hallar, Gondul, Waghur, Kutch, and Kalikut, are all Jharejas, and are all related, and among relatives it is not customary for Hindoos to marry. Except relatives there are none of their own tribe. Such is the custom of the Jharejas." The Resident asked for more information, and pointed out that the custom was forbidden in the Purans. The Government in 1807 again pressed the subject on the attention of Lieut. Colonel Walker, who on 29th June replies that he has retained Penguel Singh in the hope that his influence with the Chieftains of Kattywar may suppress the practice. On 15th March, 1808, Lieut. Colonel Walker reports that the custom arose among the Jharejas from the fact that an ancient Raja of the family could find no fitting husband for his daughter. The idea had arisen that the Bramhuns or Rajgors were responsible for the crime. "It is probable that the custom of Infanticide amongst the Jharejas was a consequence resulting from the Mahomedan conquest of Sind. By the conversion and conquest of the greater part of the inhabitants of Sind, who were undoubtedly Rajpoots before that event, the Jharejas were deprived of the usual means of disposing of their daughters in marriage." The great cause, however, is avarice, the expense of a settlement in life being very great. They also consider that the custom gives them renown. The other Rajpoot clans do not interfere because the custom enables them to marry their daughters to the Jharejas. When the child is to be killed "the mother puts opium on the nipple of her breast, which the child inhaling with its milk, dies. The above is one custom, and the following is another: when the child is born, they place the navel string on its mouth, when it expires." This is their own account, but in reality, "Immediately after the birth of a female, they put into its mouth some opium, or draw the umbilical cord over its face, which prevents its respiration. But the destruction of so tender and young a subject is not difficult, and it is effected without a struggle, and probably without pain. The natural weakness and debility of the infant, when neglected and left uncleaned sometime, causes its death without the necessity of actual violence; and sometimes it is laid on the ground, or on a plank, and left to expire." The infant is then buried. If the child is allowed to live a day or two they rarely kill it. The Jharejas consider the death of a female child the necessary consequence of

its birth, and have no compunction in the matter. Some respectable Jharejas in Kutch do not follow the custom. Their motive is not parental affection but the Jain idea that it is sinful to deprive anything of life. "It is supposed that the annual number of Infanticides in the peninsula of Guzerat amounts to 5,000." The number of deaths in Kutch is supposed to be 30,000. These are probably excessive estimates. The Resident relates instances of girls being saved, in one of which they were dressed like boys, and declared themselves to be boys. The Jharejas do not destroy their illegitimate daughters. The crime prevails also among the Jetwas. Colonel Walker discusses female infanticide historically and in the abstract and proceeds to say his task was most difficult. He applied to several Chiefs who evaded compliance. He then applied to the women of the family of the Raja of Moorvee, particularly his mother. They at first seemed interested, but soon pleaded the custom of the caste. At last this Chief after much urging wrote. "From motives of friendship, the Honorable Company have urged me to preserve my daughters : to this I consent, if the Chiefs of Nowanuggur and Gondul agree." The Chief of Mallia gave a similar writing. The Chief of Gondul after some evasions executed the deed required. Every Jhareja Chief except the Jam countersigned this deed. The Jam offered to bind his relatives but not himself. He then signed but solicited an abatement of his jumma as a compensation. Lieut., Colonel Walker considers the engagement binding because it was entered into with so much difficulty. These deeds moreover beside caste penalties confer on the Company and the Gaekwar a legal right of punishing the crime. The Jharejas moreover are frightened by the denunciation of the crime in the Shasters. Colonel Walker concludes by a remark that the Kurada Bramhuns of the Konkan are accused of human sacrifices, and adds in a note facts which seem to indicate that such is the general belief of the country. He also adds another theory as to the introduction of female infanticide. The Appendix contains a correspondence with the Chiefs summarized above. The only remarkable paragraph is in a letter from Futteh Mahomed of Kutch in which he declares that the Mussalman Emperors, and even the Sultan of Roum never interfered with female infanticide. On 16th December, 1808, Colonel Walker reports that 20 families had preserved their children, and only three appeared to have put them to death. On 25th December, 1809, Lieut. Colonel Walker again reports that a number of Jharejas including Chiefs of high rank and influence have preserved their daughters.

On 25th Feby., 1812, the Raja of Nowanugger again bound himself not to commit infanticide.

On 20th June, 1817, Captain F. D. Ballantyne, Assistant to the Resident of Baroda in Kattywar reports that the engagements entered into have failed. Thus in Talooka Drappa, containing four hundred families, there is not one female child. He adds a list of Jhareja families showing that 63 children have been saved. On 19th September, 1817, Government order the Resident to inform the Jharejas that for the future the penalties will be enforced. Lieut. Colonel A. Walker was of opinion that the increased influence of Government arising from the cession of the Peshwa's claims in Kattywar would be sufficient if kindly and patiently employed to suppress the practice. He would have the Collector appointed to receive the Peshwa's tribute, go among the people, converse with them, learn in what families a delivery was imminent, make presents and shew every mark of disapprobation to the guilty. On 27th August, 1819, Lieut. Colonel A. Walker, then in England, again pressed his views upon the Court of Directors. He suggested that the Chiefs should be induced to furnish returns of births, and that delinquency should be punished at first with fine and disgrace and afterwards like ordinary murder. Marks of honour should be bestowed on those who save their children. The fines recovered from delinquents should be devoted to rewards for those who suffer their children to live. In a postscript Colonel Walker notices that the Emperor Jehangeer once prohibited female infanticide in a Punja-bee village. On 1st March, 1820, the Court of Directors approved of these plans.

On 9th January, 1821, the Hon'ble Mountstuart Elphinstone reports that in his opinion the only effectual means of checking the practice would be to establish a rigorous system of espionage, but that we have no right to make any such attempt. On 16th July, 1824, Captain R. Barnewell reports that 266 Jhareja girls are alive in Kattywar. He conceives however that the practice has scarcely abated, and doubts if any measures of repression will be successful without espionage. On 7th June, 1825, he continues remarking that remissions have been granted to Jhareja families on their daughter's marriage, and the Raja of Gondul will be compelled to pay Rs. 15,000, of which Rs. 8,086 will go to the Gaekwar and the remainder to the infanticide fund.

The official correspondence continues at intervals till on 24th September, 1834, Mr. J. P. Willoughby, Political Agent in Kattywar reports that

"The number of males of and under the age of twenty is, ... 1,422
The number of females of all ages known to have been preserved is, 696

Excess of males, therefore, is, ... 726

The number of females alive he considers gratifying, more especially as the Chiefs and their relatives had set the first example. In one talook there is an actual excess of females over males. In another the number of the sexes is equal. Mr. Wilmoughby recommends a complete census of the Jhareja population, and mentions the machinery which will be necessary. Moreover "every Jhareja Chief should be required to furnish a half-yearly register of all marriages, betrothals, births, and deaths occurring among his tribe residing in his district." Lastly the Political Agent should be compelled to furnish an annual report on female infanticide. Informers again should be rewarded, and a proclamation issued stating "the possessions of the Chiefs of Kattywar are guaranteed to them, on certain conditions, and it is the sincere wish of Government that they should continue to enjoy them, and all their privileges and immunities, free from molestation. The compact is, however, reciprocal and mutual, and the Chiefs have stipulated that they will cease to disgrace humanity by destroying their own helpless offspring at the moment of its birth. Should they not adhere to this condition, the compact is broken, the favour and protection of Government will be withdrawn, and the severest penalties be imposed until the inhuman custom is completely eradicated." These measures are considered by natives likely to be efficacious. A proclamation announcing these resolutions is submitted for sanction. It contains also a threat. Moreover "any person charged with having violated it will *either be placed on his trial for the heinous crime of 'child-murder' before the High Court of Criminal Justice recently established in Kattywar, or be dealt within such other mode as may be deemed most expedient.*" The proclamation was sanctioned, with the exception of the words in italics, and in April, 1835, the Raja of Rajkot was tried and found guilty of infanticide. It was recommended that a fine of Rs. 12,000 should be imposed on him, that his talook should be attached till it was paid, and that he should dismiss the servants employed in the transaction. The Government sanctioned these measures. In September another Jhareja named Veerajee was accused and convicted, and recommended for imprisonment for one year in the common gaol and a fine of Rs. 3,000 or two years' further imprisonment.

On 30th June, 1837, Mr. J. Erskine, Political Agent states the result of the first census showing 1,310 male and 837 female Jharejas. Mr. Erskine after a careful analysis of all that had previously been done considers the measures adopted superficial and somewhat weak. The sudden action of the British Government in the case of the Raja of Rajkot

after many years of apathy left the impression amongst the Jharejas that the Chief was a martyr. Let any person inspect the census and it will be evident that the crime was universally practised up to the time of Mr. Willoughby's Agency. No attention was paid to the subject by the British Authorities. When we remember the great objections, on the part of some of the most able Officers of the Hon'ble Company's service, that were made to the suppression of the Suttee, fault cannot be found with the predecessors of Mr. Willoughby. If Mr. Elphinstone had extended to the whole of the natives subject to his control, that system of education which he instituted in Bombay, doubtless a great stride towards the suppression of the crime would have been taken. The system of informers is both destructive and embarrassing. How would any man in England, brook the enquiry as to how many times his wife had been enceinte or how the delivery took place? In our defective system of jurisdiction it is quite impossible to save the life of the informer. False accusations are continually made. The vigorous investigations ordered by Government only produce greater vigilance in the commission of the crime. These strict enquiries enlist the feelings of the other tribes in favour of the Jharejas. To try criminals before the Court of criminal justice, to try the people who commit the crime, by their brothers and instigators would be futile. To use present severe coercion for the suppression of the crime is inexpedient. Penal enactments without the concurrence of the people cannot be of service to the community. The sumptuary system is both ephemeral and partial. With respect to the funds supplied to Jharejas for the marriage of their daughters, their propriety seems still more questionable. The advance of money to a Jhareja, for the marriage of his daughter, keeps alive that arrogance which is the source of the crime. The Jharejas at the time of their inroad from Sind into Kattywar were Mahomedans. They either brought the custom with them, or on the Rajpoots refusing to enter into marriage connection, they sacrificed their daughters. In all Jhareja towns there is a large population of Powyas, whilst in the Jhalla villages, there are none. Although religion nowhere authorizes infanticide, yet the laws which regulate marriage amongst the Rajpoots powerfully promote it. Marriages cannot be contracted with those of the same clan or even of the same tribe. The following measures are proposed for the suppression of the crime:—I. All the Rajpoot Chiefs shall be required to enter into an engagement that they will not give their daughters to any tribe who will not give them theirs in return. II. The Jhareja Chiefs shall enter into a stipulation that the expenses of the marriage

of the daughters of their Bhyad shall not exceed the amount fixed at a general meeting of the caste; and shall be informed that government will cheerfully assist the indigent. III. A distinctly specified penalty ought to be proclaimed in case of the infringement of their engagements. IV. The principle of the responsibility of the Chiefs for the conduct of their Bhyads should be strictly observed. V. The minute scrutiny by the census to be the test. VI. The Chiefs promised that if a general amnesty were granted to the committers of the crime they would engage most solemnly to discontinue it for the future. Therefore during a period of two years no investigation should be made, and the result of the census at the end of that period should be the test. VII. The assistance of the Rao of Kutch, the head of the Jhareja community should be secured. VIII. The mass of the people should be educated.

The Appendices contain a report upon the difficulty of the suppression of infanticide; a proclamation by the British Government; a circular deprecating the commission of the crime; the receipts of the Mohsullee and Infanticide fund; the resolutions passed by the several Rajas and Rajpoot Chiefs for the better suppression of infanticide, and lastly the establishment of a censor for the Jhareja tribe of Rajpoots in Kattywar.

After a letter from the Assistant Political Agent detailing the investigation of certain accusations of female Infanticide, Mr. J. P. Willoughby animadverts upon the report of Mr. Erskine. Mr. Willoughby gives the census of the Jhareja population in 1836 to be males 1,422, females 409 which is slightly different, as will be observed, from that given by Mr. Erskine. With the first two propositions of Mr. Erskine for the suppression of infanticide, Mr. Willoughby entirely concurs, on the third proposition he says "I think few will agree with the Political Agent in opinion that it is advisable to fix a period prospectively from which to punish the crime." After passing over the fourth and fifth propositions he expresses his extreme astonishment at the sixth proposition. With the remaining measures suggested by Mr. Erskine, Mr. Willoughby expresses his entire concurrence. After copies of certain circulars which have from time to time been distributed amongst the Jhareja Chiefs, we have a list of the Chiefs to whom circulars have been forwarded, with their replies. The Honorable the Governor and the Board in their minutes upon the foregoing reports of Mr. Willoughby and Mr. Erskine express their great satisfaction with the spirit manifested by both, but are at a loss to imagine, how Mr. Erskine should have supposed that the demeanour of the Government

towards the Jhareja Chiefs has ever been other than conciliatory, and entirely disapprove of Mr. Erskine's sixth proposition. Certain official correspondence relating to the corrupt conduct of the censor for the province of Kattywar follows. In a letter from the Acting Political Agent in Kattywar, dated 23rd October, 1841, we find that the proportion of males to females during ten years has decreased from the proportion of $1\frac{1}{2}$ to 1 to the proportion of 1 to $1\frac{1}{4}$ which he considers highly favourable. He suggests that the nearest female relative or the wife of the censor should be associated with him in his office. He asserts that the crime of infanticide is by no means confined to the Jhareja or Jetwa population, it is extensively practised by the Mahomedan tribe of Shetas. With regard to the census as a means of suppression, after animadverting upon the fallibility of its returns he remarks. "We may save life by the census, but how can we protect it from misery and neglect afterwards?" And suggests that 4,000 Rs. should be set apart from the Infanticide Fund for the erection of a school house, and that 1,000 Rs. a year should be devoted to the encouragement of annual vernacular essays upon the subject of infanticide. The Appendices contain the census forming the basis of the foregoing reports with the abstract of the Jhareja population of Kattywar for 1840. In 1833 the number of males was 5,804; the number of females was 603. In 1840 the number of males was 5,760, the number of females 1,370. The number of alleged cases of infanticide which have come under enquiry between 1837 and 1841 is 28 of which 27 cases were not proved. Mr. J. P. Willoughby having been requested by the Hon'ble Mr. Anson to examine the report of the Acting Political Agent, remarks upon the favourable nature of the crime, returns, and proceeds. The Governor in Council remarks upon the small number of convictions incident upon certain cases of alleged infanticide that a preliminary enquiry should be held in private previous to the accused party being placed publicly upon his trial. The arrangement that the wife or the nearest female relative should be associated with the censor should be adopted. Mr. Willoughby thinks that money should not be appropriated from the female infanticide fund for the purpose of building a school. He approves of the proposed essay prize. The Right Hon'ble the Governor in a minute upon both report and memorandum, assents to the carrying into effect the suggestions given in the memorandum of the Political Agent, with the exception that continued prize essays cannot be established. He considers that education is too slow in its effects to be the only instrument employed, and persists in the use of vigorous coercive measures. Between June, 1837 and October, 1841 not a female

child in Shahpoor was, as appeared from the census, permitted to live. Kallajee, the Chief of this Talooka was fined 1,000 Rs. Upon this slight punishment the Political Secretary remarks that after the severe examples which have been made in Kattywar the mere fine seems scarcely an adequate punishment. In reply dated 28th November, 1842 the Acting Political Agent submits that there were extenuating circumstances in the conduct of the Jhareja Chief, there having been four daughters born during the four years abovementioned, who had all died. He cannot overcome the native prejudices so far as to secure the services of a female censor. In an Appendix to this reply, Captain Jacob, the Acting Political Agent, conveys an application from the Jam of Nowanuggur asking the assistance of Government to facilitate the marriage of 21 members of his Bhyad. In the Appendix attached the census shews, for the year 1841, that 292 female infants had been preserved. The Government sanctioned a donation of 5,000 Rs. for the marriage of the 21 persons mentioned. After some correspondence upon the difficulty of deciding which essay upon female infanticide was most deserving of the prize offered by the Government, and upon the numerous mistakes in the census returns, Colonel Lang, Acting Political Agent at Kattywar in a report dated 25th August, 1846 shews that amongst the Jetwas there is an increase of 165 female children to 202 males for the year 1845. During the year 1845 only three Jharejas required assistance for the marriage of their daughters. Mr. Willoughby proposed in 1834 a reward for all Jharejas who had at that time two daughters living. In 1834 there were only two Jharejas with four female children, thirteen with three, and eighty with two each. In 1845 there were two Jharejas with 5 daughters each, nineteen with four and one hundred and five with three. The reward is therefore purposed to be limited to those with four daughters, and to be 300 Rs. to each. Lieut Colonel Lang proceeds and states that the annual subscription to the Female Infanticide Fund amounted in 1845 to 4,398-13-1 which he considers favorable, and suggests that the school should at once be built.

All the operations of Government for the suppression of female infanticide proceed favourably. No new methods are introduced. The instruments employed are, 1st, Reduction of the marriage expenses. 2nd, Rewards given to those who had four daughters and upwards, 3rd, The promotion of education, and the establishment of a prize for the best essay on this subject. 4th, Coercive measures with the judicious employment of the census. The census returns for the year 1852 shew the per-

centage which the females bore to the males during the years 1842—1852 :—

Years.	Jharejas.	Soomras.	Jetwas.
In the year 1842,.....	30	40	34
Average of the 5 years ending 1846,	33	48	37
In the year 1847,.....	40	60	44
Average of the 5 years ending 1851,	43	65	52
In the year 1852,.....	47	69	57

These results were considered highly gratifying by the Bombay Government. An account of the trial of certain offenders for the crime of infanticide, with observations upon the best methods for the reduction of the marriage expenses amongst the population of Kattywar, here follows. On the 15th August, 1855 the Bombay Government resolve that the expression of the gratification of government be conveyed to the Rao of Kutch and His Highness the Jam of Nowanuggur on account of the highly favourable declarations which have been made by both these princes upon the reduction of marriage expenses. The intelligence that marriages in Kutch have very much increased is a source of sincere gratification to the Government.

The Right Honorable Governor in Council entirely agrees with the Acting Political Agent that His Highness the Rao must be permitted to hold his own opinions, as to whether the matter of taking Pudloo and marrying by Dhola,* is in opposition to the customs of kings and to the Shasters, or not ?

* By "taking Pudloo" is meant the sum of money given to the parents of the girl about to be married by the parents of the bridegroom. By "marrying by Dhola" is meant the sending of the bride to the bridegroom, who does not come to receive her : this happens when the rank of the bridegroom is greater than that of the bride.

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INDIAN ADMINISTRATION.

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1857.



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THE Governments of India publish on an average a volume every four days. From Reports affecting the entire Empire to accounts of local drainage, from the opinions of the ablest officers to the cost of a cutcha bye-road in a frontier province, every thing finds a place in these publications. There is scarcely a subject connected with Indian Administration on which they do not exhaust official knowledge. There is no officer in the country who may not obtain from them, in reference to his special task, all the advantages of experience. The information thus vast is, however, widely scattered. The Records of one Presidency are scarcely known in another. The books are not very readily procurable, and above all they are like all other blue books dry, ill-digested, and overlaid with detail. It costs an hour to find a fact, and in India men who care about facts cannot spare hours.

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THE
ANNALS
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REPORT ON THE TEAK PLANTATIONS OF BENGAL.

Bengal Records, No. XXV.

On the 7th March, 1854, Dr. H. Falconer, the Superintendent of the H. C. Botanic Garden, submitted a Report upon the condition and prospects of the Teak Plantation established at Sylhet and in the Jungle Mehals or Bancoorah. The Sylhet Teak Plantations were sanctioned in 1814. In 1851 only 13 trees survived out of the 1,800 reported to have been standing in 1819. One of the Plantations has entirely disappeared, the ground having been selected for the cantonments of the 70th Regt. N. I. The Teak tree does not attain its full growth in less than 80 years. The trees remaining at Sylhet are not more than half-grown. Sylhet is not a favourable locality for the growth of Teak. The Bancoorah Plantations were sanctioned on the 23rd April, 1814. In 1819 the area of the Plantation was 350 beegahs and the number of the trees about 22,000. The Plantation at present costs nothing, and the Dalkissoor River will furnish in the rains a ready channel for the transportation of the logs. The Rampore Bauleah Plantation was given up in 1832, as also was the Kishnaghur Plantation in 1827. No portion of the delta land of Bengal is suited to the growth of first class Teak. The soil and the rains are both unfavourable, the former causing the trees to throw out horizontal roots. There was however a grave error in the yearly planting arrangements. The trees were planted at intervals of ten feet apart, and never thinned out as they grew up. Planting operations have been commenced in Madras on a large scale. A Teak tree at Gowalparah attained in 25 years a height of 25 feet and was 9 feet 3 inches in girth at 3 feet above the ground. The rapidity of this growth exceeds any thing of the kind.

NOTES ON THE PRODUCTIVE CAPACITIES OF THE SIAM COUNTRIES.

Bengal Records, No. XXV.

THE countries occupied by the Shan tribes, particularly Siam and the tracts to the North and East, have great productive capacity. The lower ranges of the hills bounding Menam and Cambodia are covered with forests producing teaks, rose-wood, gamboge, a species of gum benjamin, cardamum, saffron, red-wood and sandal-wood. Large quantities of stic-lac are produced. Tea is cultivated largely. The tea when it is sold at Ava is in brick-like masses and is purchased by the piece. Fibrous plants abound, and silk is produced. The minerals of the Shan Territories are tin, lead, antimony and iron. In Moongmeet there is a silver mine which belongs to the King of Ava but is worked by the Chinese. In the vicinity of Moonkong rock crystal is found in abundance and near the sources of the river Ura, "Noble Serpentine" is found. This is much prized by the Chinese under the name of Yueesh or green-stone. In the valley of Hookong on the Assam frontier amber is found in abundance. The bulk of the amber is taken to China, where it is used medicinally and as a varnish. The amber is in colour either red or golden and oil green, one sort is opaque. In the vicinity of the amber mines are brine springs. Gold and Platina or Khumpok are found. The rocks of the Irrawaddy abound in steatite which is used for writing. In arts and manufactures the Shans are far behind the Chinese, they are however great workers in silver. Horses, horned cattle and elephants are common. The great Chinese mart on the Upper Irrawaddy is Bamo, it is situated in Lat. 24° 12' and 97° E. Long. It is the largest place in Burmah with the exception of Ava and Rangoon. The water of the river under the town is deep and the banks precipitous. The route from Bamo to Yunan is by the line of the Taping Kyoung, a small river flowing into the Irrawaddy. Honey is largely imported from China as also are rich silks, velvets and gold. The staple export from Bamo is cotton, which is grown in the Districts of the Lower Irrawaddy. Of this about 1,75,000 maunds at from Rs. 2-8 to 3 Rs. a maund are annually exported. A Portuguese factory is said to have been established at Bamo about 250 years ago. The transit of Cotton from the Lower Irrawaddy is periodical and is effected by water, in boats of a large size averaging perhaps 150 tons burthen.

REPORT ON SERAJGUNGE.

Bengal Records, No. XXV.

A. J. M. MILLS, Officiating Judge of the Sudder Court reports upon Serajgunge.

Serajgunge is a Sub-Division composed of three Thannahs, Raegunge, Shazadpore and Serajgunge; these belong respectively to the Zillahs Bogoorah, Pubna and Mymensing. It is under the charge of a Joint Magistrate and Deputy Collector. Monthly statements for each Thannah are furnished to the Magistrates of the several Zillahs, and the results are embodied in their Returns. In 1856 there were 53 cases of heinous crimes and 281 of petty offences, in all 334 cases of 602 persons. At the end of the year there were 21 cases of 57 persons. Mr. Davis, the present Magistrate is not sufficiently speedy in the disposal of criminal cases. One case pending since 1848 has been remanded three times by the Sessions Judge of Mymensing.

The value of the property stolen in 1852 amounted to Rs. 10,296-5-5, the amount recovered was Rs. 881-11-6. There is no regular Jail. The prisoners are confined in the Thannah Guard. Paid persons are employed to attest the confessions of prisoners. This practice is objectionable but so is that of seizing respectable persons, and compelling them to proceed to a distant station to give evidence. Numerous cultivators complain of the Indigo Planters. They charge them with sowing their paddy lands by force, and seizing and confining their cattle. There are eighteen Indigo Factories in the Sub-Division. There is reason to believe that the charges against the planters are often wholly without foundation. There is no Vernacular School in this Sub-Division. A School has been established by private subscription at Shazadpore but the master is very inefficient and the Scholars do not number above 30. Serajgunge is populous and contains about 17,500 inhabitants. The District of each Thannah should be more compact.

The Thannah Dak was placed under the orders of the Post Master on the 1st May, 1852. The Dak to Calcutta occupies five days, whereas the Dak from Calcutta only occupies three days. This irregularity requires notice. Serajgunge situated on the Bermapooteer, there called the Juboonah, is a place of great traffic and employs about 20,000 boats. The lands are well cultivated but the soil is not very good. There are no regular roads. A statement of places from and to which goods are exported and imported is annexed.

CORRESPONDENCE RELATIVE TO VACCINATION.

Bengal Records, No. XXV.

ON the 14th August, 1854, the Commissioner of Burdwan writes to the Secretary to the Government of Bengal, and encloses a Report from Mr. G. F. Cockburn detailing the success of Vaccination at Midnapore. Mr. Cockburn recommends that in order to obtain good lymph, two children should be sent to Calcutta, from all Districts within a reasonable distance, to be vaccinated. He recommends, 2ndly, that a book in Bengalee should be published detailing the advantages of Vaccination. 3rdly, that every Collector should in his winter tour be accompanied by a Vaccinator. 4thly, that all convicts should be vaccinated. 5thly, that boys attending the Government Schools should be vaccinated, and lastly that all Native Doctors and Sub-Assistant Surgeons should be required to vaccinate gratis. In 1851 the vaccinations amounted to 1,804; and in the first half of 1854 to 9,495, of which 8877 were successful.

This report of Mr. Cockburn was sent to the Medical Board who approve generally of his suggestions.

CORRESPONDENCE ON THE DISCOVERY OF THE
TEA PLANT IN SYLHET.*Bengal Records, No. XXV.*

THE Magistrate of Sylhet on the 4th January, 1856, announces to Government the discovery of the Tea Plant. The first discovery was made in Pergunnah Chandkhanee, but the plant has since been found to exist in the entire range of hills forming the eastern boundary of the Zillah, from Chandkhanee to the very North westward extremity, as far as Laour. In the event of grants of land being made for Tea Cultivation the leases should be short. The Report then proceeds to enumerate the localities in which the tea plant has been discovered.*

* A map exhibiting the localities of the tea plant in Sylhet and Cachar is affixed.

REPORT ON THE HON'BLE COMPANY'S BOTANICAL GARDEN.

Bengal Records, No. XXV.

DR. T. Thomson received charge of the Garden on the 17th April, 1855, the report is dated 23rd July, 1856. The absence of the Head Gardener, Mr. Scott on special duty in Pegu caused great injury to the Garden. From the 15th June, 1855 to 29th February, 1856, 15,865 plants were issued to 296 applicants. The issue of plants has now been stopped by Government, in this act Dr. Thomson full concurs. The applications for grafted fruit trees have been far greater than the Garden can supply. During the year 1855, 63 glazed cases of plants were despatched from the Garden, in 1854, the number was 55. These cases have been partly supplied to private applicants and partly to public establishments, such as Kew Gardens, those of Peradenia in Ceylon, &c. &c.

Mr. Scott while on deputation in Pegu greatly enriched the Garden. The Garden Collectors have all with one exception furnished valuable contributions. The one exception is the Collector of Malacca. The young palms, of the *Palmetum* laid out in 1849 by Dr. Falconer, have attained a considerable size. A Natural and a Medicinal Garden have been laid out. The Garden School instituted by Dr. McClelland in 1847 has not answered the purpose for which it was intended. The Garden rates of pay are not sufficient to induce lads to remain. The Garden Herbarium has been re-arranged. The present establishment was fixed by the Finance Committee in 1830 at Rs. 1100 with a contingent allowance not to exceed Rs. 160 a month. What Kew Garden is to London, that the Calcutta Garden ought to be to the Metropolis of India. The reporter here enumerates what points call for increased outlay. A Glass house should be built. A small increase in the establishment of Collectors is essential. There should be an allowance for the maintenance of a Library. The Garden Library affords no books less than 20 years old!

The Appendix to the Report is a list of the plants in the Herbarium, which was first formed in 1828.

NOTES ON THE PATNA OPIUM AGENCY.

Bengal Records, No. XXV.

DR. Lyell observes that Opium is a concrete juice obtained by making incisions into the capsule of several varieties of the *Papaver*

somniferum. Chemists have succeeded in detecting morphia, codiea and narceia—which are combined with meconic and sulphuric acids. Gum, resin, coloring matter, woody fibre, saline and earthy matters and caoutchouc constitute the great mass of the drug. The quantity and richness of the poppy juice are influenced by the soil. The white poppy yields the least Opium, and the purple most of all. This last contains about three times as much morphia, but only an eighth part of the narcotine of the white. The red poppy is intermediate between the two. Landerer observes that the seeds obtained from the capsules which have been used in the preparation of Opium, if sown, yield an inferior Opium.

The land in the vicinity of a village is usually selected for the cultivation of the poppy, on account of its superior richness, and for facility of irrigation. When the soil is strong the poppy is a second crop, generally succeeding Indian corn. In the latter part of September and the commencement of October the ground is carefully prepared by two or three ploughings, and the lumps of earth are broken. About the middle of October the sowing commences. The seed is sown broad-cast, and from three to four seers are required for each beegah. The ground, divided into oblong plots, is well watered before the plant springs. Water containing saline matter is preferred. The plants are watered according to the quantity of rain which falls; after they have attained the height of 5 or 6 inches they are carefully thinned at three or four successive periods. Great attention must be paid to weedings and loosening the soil. At the first thinning the young plants are sold and eaten as a salad, those of the 2nd and 3rd thinning are seldom used. As soon as the petals of the flower fall off they are collected and made into a covering for Opium cakes. The gummy matter is first extracted by heat. In the third week in January the capsules are scarified by an iron instrument having four prongs about $\frac{1}{4}$ th of an inch apart. The operation is performed in the afternoon and the juice collected early on the following morning. The collection is most critical. The condition most favourable is a still atmosphere which allows it to thicken and collect in tears. Strong winds or a cloudy sky preventing the formation of dew greatly reduce the quantity of the produce. When the dew is very abundant the juice is apt to flow off the capsule and become wasted. The average quantity produced in a beegah is from five to seven seers. The Opium receives no treatment at the hands of the cultivators. It should never be kept under ground. The seeds of the poppy yield, by expression a very bland and valuable oil. It sells in the bazar at from 8 to 10 Rs. a maund. The leaves fetch 4 Annas a maund, they are used for packing the Opium.

The reporter here mentions the manner in which the Opium is received into the Sudder Factory and proceeds. The Opium having been stored in large vats is transferred into small vats and mixed. Whenever the consistence of the drug in the vat is proved to be 75 the caking commences. Each cake is composed of "1 seer $7\frac{1}{2}$ chittacks of Opium at 75 consistence, 3 chittacks and 3 kutchas of Opium at 75 consistence diluted into 51 consistence gives $5\frac{1}{2}$ chittacks of lewa or paste, the material used for agglutinating the covering and 5 chittacks and $1\frac{1}{2}$ kutchas of leaves, making in all 2 seers and $2\frac{3}{4}$ kutchas." The number of the cake-maker by whom the cake is made is written on a slip of paper and pasted on the cake. The cakes are turned in their cups every four or five days after their manufacture, subsequently every eight days during the rains, and in dry weather every twelve or fifteen days. When they have become set, the outer surface of the cakes and the inner-side of the cups are rubbed with bruised poppy leaves. This is an operation of great importance, and requires great care. When the cakes are dry, a thin leaf is pasted on their surface. The Chinese pay the highest price for that Opium which in the drug market of Europe is looked upon as of the poorest description. The cakes are never ready for packing until the westerly winds which set in about the end of October. The Report contains a calculation shewing the superiority of the Ghazeepore packing to that adopted at the Patna Agency. In 1845-46 there were at the end of the season Mds. 89-27- $6\frac{1}{2}$ of Opium in store, in 1854-55 there were Mds. 1325-30- $6\frac{1}{2}$. In 1845-46 there were Mds. 29-19-10 confiscated and in 1854-55 Mds. 53-29- $1\frac{1}{2}$. The greatest care is taken in the choice of boats to convey the Opium and every fleet is under the charge of two Europeans. The report concludes with the method employed for analysing opium.

REVENUE REPORTS OF THE GANGES CANAL.

Indian Records, No. XXI.

LIEUT. Colonel R. Baird Smith on the 7th December, 1855, submits his first report on the revenue yielded by the Ganges Canal. The time embraced in the report is the Fussil Khureef* of 1855-56.

In September water was admitted into the Canal. On the 9th signs of failure in the Masonry revetments of the right embankment appeared. At a point about 1000 feet above the Ma-

* Autumn Crop.

sonry Aqueduct, the rear wall of the revetment was observed to bend into the form of a bow on a length of about 300 feet. Within two hours the Canal was laid quite dry in front of it, and all real danger was at an end. So soon as the water was passed off, the front wall, forming a chord of which the rear wall was the arc, was thrust forward by the same interior pressure. This pressure originated in the core of the revetment being of loose, unconsolidated earth, and not tamped so as to form a water tight puddling. The front wall being previous to the Canal water the whole core was transformed into a semifluid mass. The facts brought broadly into view by these results were two. First, extensive settlements of the Earthen Aqueduct bed were the consequences of the admission of any considerable volume of water, whereby the front walls of the masonry revetment were endangered. Second, that till the right embankment was completed, according to Sir P. Cantley's design, the rear revetment wall could not be secure against accident. The Canal thus closed in April was re-opened in November, but was obliged to be reclosed on the 1st March, 1855 owing to leakage. On the 1st of April the Canal was again opened and the supply was rapidly raised to an average depth on the aqueduct of 3 feet. The Canal except for a day or two during the rains has not been again closed, and the supply has been maintained at from 4 to 5 feet on the aqueduct. The Revenue derived from the Ganges Canal during the period under review amounted to Rs. 8571-8. Of this sum Rs. 7,710-9-9 are revenue and Rs. 860-14-3 Tuccavee collections. The total value of the water applied for was Rs. 3,258-8-0. The value of that utilized was Rs. 144-14-2. These results are very moderate but the Eastern Jumna Canal shows a Revenue of Rs. 4,000 during its first Khureef, of which water rates supplied Rs. 3,000. The Western Jumna Canals shewed at first a Revenue from water rates of less than Rs. 900. The Canal flour mills were not opened until the Khureef was well advanced. Between August and October 5 mills employing 36 stones were opened. At first the Canal mills were worked under the immediate direction of the Canal officers, but hereafter they will be rented by public auction. The transit dues on navigation have been limited to the Returns derived from Government boats, and the navigation has been confined to the line between Hurdwar and Roorkee. The only other point upon which the reporter remarks is the collection of Tuccavee advances. This is a most serious difficulty which will have to be overcome. He

proposes that the Government suspend all demand for the

1855-56.	From sale of water.	From mill rent.	From Transit dues.	From sale of Canal Bank produce, &c.	From filling tanks and watering cut- tle.	From Fines.	Total of each fiscal	Grand Total of 1855-56.	Tukavet collections in 1855-56.	Saving to works by use of canal for transit in 1855-56.
Fussil Khureef,	8,258 8 0	1,061 11 9	1,224 8 0	2,165 14 0	0 0 0	0 0 0	7,710 9 9	0 0 0	860 14 3	0 0 0
" Rubbee,	31,384 13 5	3,212 6 3	1,419 6 8	4,448 7 6	31 1 4	393 8 3	40,889 11 5	48,600 5 2	5,453 8 7	15,460 12 11
Totals, ...	34,643 5 5	4,274 2 0	2,643 14 8	6,614 5 6	31 1 4	393 8 3	0 0 0	48,600 5 2	6,314 6 10	15,460 12 11

prime cost of Rajbhuas for three years, from the time at which irrigation may commence upon them. He calculates the gain in returns from increased consumption of water would be Rs. 23,530 and the loss from the suspension will amount to 10,000 Rs. leaving a nett gain of Rs. 13,530. The second report includes the period from 1st November, 1855 to 30th April, 1856. The volume of water maintained during the season gave an average height of 6 feet or approximately 3,000 feet per second in the Canal Channel. The progress made on the extension of the main Channels had been marked and satisfactory. Two sketch maps are appended. One shews the condition of the distribution Channels on the 31st October, 1855 and the other on the 30th April, 1856. The extent actually open on the last mentioned date was 1,252½ miles. As the most convenient way of exhibiting the revenue results of the Rubbee season under review, the Report considers each division of the Ganges Canal separately.

The general statement of the revenue from the Ganges Canal during 1855-56 is:—

The following statement illustrates the extent to which the influence of the Canal has been felt by the agricultural community of the Doab :—

Divisions.	I. DIRECT CANAL IRRIGATION.								
	No. of villages irrigating.			Effective Irrigation.				Proportions to each village.	
	By contract.	Area.	Total.	No. of pymanahs issued.	No. of beegahs watered under contract.	No. of beegahs watered under rates.	Total area of irrigation in each.	Of pymanah.	Of beegahs.
Northern, ...	134	..	134	95-15	18,507	...	18,507	0.71	138
Upper Central, ...	54	77	131	49-5	9,628	9,648	19,276	0.91	147
Lower Central, ...	104	...	104	58-16	8,076	...	8,076	0.56	77
Cawnpore Terminal, ...	...	78	78	...	...	3,114	3,114	...	40
Etayah Terminal, ...	...	12	12	...	...	190	190	...	16
Total of Canal Villages, ...	...	...	459	Total area of canal irrigation, ...			49,163		
II. INDIRECT CANAL IRRIGATION.									
Lower Central, ...	...	340	340	...	.....	16,034	16,934	...	50
Cawnpore Terminal, ...	...	266	266	...	.....	19,183	19,183	...	72
Etayah Terminal, ...	...	69	69	...	.....	2,295	2,295	...	33
Total of Escape river Villages, ...			675	Total of Escape River Irrigation, ...			38,412		
Grand Total of Irrigating Villages, ...			1134	Grand Total of Canal Irrigation, ...			87,575 Beegahs, or 54,784 Acres.		

Assuming that the common average difference in the produce of irrigated and unirrigated land has prevailed over 50,000 acres of the area watered by the Ganges Canal, the gain to the people from this source alone, during the Rubbee of 1855-56, will be found to be 5 lakhs of rupees.

In his second Report Lieut. Colonel Baird Smith again recommends that the Tuccavee advances should be suspended for 3 years. The Ganges Canal closed its first year of work with 449½ miles of main Channel open for water, 436 miles of rajbaha Channel completed, and 817 miles in active progress. The aggregate revenue has amounted to somewhat more than Rupees 60,000. 98,000 beegahs or 55,000 acres have been watered and 1,66,000 acres have been placed beyond the risk of serious damage from drought. It seems probable that within five or six years the direct revenue of the Canal will cover all current expenses, and that thereafter the Canal will continue to pay a gradually increasing interest upon the capital sunk in its construction. The money sunk up to May, 1856 was Rupees 1,73,55,612-4-1.

IRRIGATION IN LOWER EGYPT.

Indian Records, No. XXI.

THE Governor of Bombay, at the suggestion of Major General Waddington, authorised Captain Fife to remain for three months in Egypt in order that he might report upon the new system of irrigation there practised. On the 4th April, 1856, Captain Fife forwards the result of his enquiries and inspections.

At the head of the Delta, the banks of the river are embanked to a height of from 6 to 8 feet, the thickness of the top varying from 8 to 20 feet. Other embankments run in every direction dividing the country into large fields. At the time of the inundation when the canals, which, with the exception of those newly constructed, are full of twists and turns, are full of water, the embankments are cut through and the country inundated to a depth of 3 feet. At other times, the Sakea and Shadoof are employed. About 20 years ago M. Linant Bey perceived the enormous expense attending the raising of water by means of the Sakea, &c. and the great gain that would be derived from irrigating the crops, instead of merely inundating the land before sowing the seed. He accordingly proposed the Barrage or Regulating Bridge across the Nile, and the system of canals in connection with it. M. Linant Bey's plan was, to cut two new channels at the head of the Delta, to carry off the water of the Rosetta and Damietta branches, to construct a regulating bridge in each channel, and then completely dam up the old channels.

M. Linant Bey's plan was never carried out. But the plan now being perfected by M. Mongil Bey, is substantially the same. The canal system is to be the same as that proposed by M. Linant, but the Barrages have been constructed in the natural channels of the Rosetta and Damietta. Both the Barrages rest on a bed of concrete sunk 21 feet into the bed of the river, which consists of loose sand. The foundations are secured by rows of piles. The bridge across the Rosetta consists of 64 arches of 16 feet span, with a lock at one end for the passage of boats. That across the Damietta consists of 74 arches and has also a lock at one end. The head of the Delta, between the two bridges, is protected by a revetment of stone resting on piles. The total length of the two bridges is 1800 feet. The heads of the three canals have been excavated ; that on the Rosetta side is about 100 feet in width. The central one for the Delta is 300 feet wide at bottom and about 10 feet deep. The Barrage when this Report was made had cost 1,80,00,000 francs, it was expected before completion to cost 1,20,00,000 francs more. Captain Fife observed nothing in Egypt worthy of adoption which was not practised in Sind. He considers that the outlay on the Barrage was comparatively needless. With regard to the employment of steam power in Sind, he observes that the question is merely one of expense. As labour in Sind is only half the price that it is in Egypt it follows that steam power in the former country cannot be employed with the same advantage that it is in the latter. The report of Colonel Fife was submitted to Lieut. Colonel Baird Smith. The latter says that his impressions of the Nile Works were identical with Captain Fife's. With regard to embanking irrigating rivers in Sind, he strongly recommends that no extensive measures should be sanctioned without the most careful investigation. As regards the systems of distribution and revenue he believes that the best principles may be gathered from the practice in the provinces of Lower Egypt. Steam should not be employed in Sind for purposes of irrigation. The cost of irrigating one acre in Sind by means of Canal works is Rupees 0-8-6 whilst by steam power it would be Rupees 9-6-4. From these reports it is evident that there is nothing to be learned either from the ancient or more costly modern practice of irrigation in Egypt. It would not be advisable to embank the irrigation Channels from the Indus, for, the effect of holding up the water would be to check the current and encourage the deposit of silt.

COMMUTATION RATES OF THE MADRAS PRESIDENCY.

Madras Records, No. XXXI.

THE Madras Board of Revenue on the 8th November, 1852 issued a Circular to Collectors containing a series of questions designed to elicit information on the Commutation Rates. The replies of the Collectors, with an abstract and the opinion of the Board were commented upon by the Governor in Council on the 11th June, 1855.

It appears that Commutation Rates exist only in the ten Districts of Nellore, Chingleput, North and South Arcot, Tanjore, Trichinopoly, Tinnevely, Salem, Coimbatore and partially in Malabar. The Government observe that the chief use of the replies of the Collectors is that they bring into more prominent notice the vague and uncertain proceedings on which most of the existing settlements were based. The reports have also much use in drawing attention to the imperfect method of taking the prices of grain. It is impossible to say with any certainty what prices were even professed to be shewn on the price statements on which the Commutation Rates were based. Even now there is so little uniformity in the mode of taking the prices, that the price lists in any two places, cannot be safely compared or even the lists themselves relied on. To remedy this uncertainty there should be some fixed standard of measure. On the periodical revision of the Commutation Rates the Government give no opinion. They point out that on this subject the opinions of the Board are inconsistent. The Government further observe that "the money price of all commodities have a tendency to fall with the progress of improvement, but that rents have no tendency to fall, but to increase." Future revisions of the rates of land assessment should therefore be guided less by any necessity of meeting the loss of falling prices, than by the broad and liberal policy of affording scope for the further extension of cultivation and so widening the basis of taxation.

The Board of Revenue on the 3rd of May, 1855 submitted to the Madras Government an abstract of the reports received from the Collectors of the several Districts on the price of grain and state their own views as to whether any general relief is necessary and as to the propriety of some periodical revision of the Commutation Rates. The Board observe that it is only in a few Districts that the assessment was fixed by commutation prices, and that since 1854 the state of the grain market has changed from one of extreme cheapness to one of very high prices.

A comparison of the alleged Commutation Rates and the prices which have ruled at different times will not in the opinion of the Board prove sufficient for arriving at correct conclusions either as to the condition of the landed interest in any single district nor to the remedial measures which should be adopted for placing it when depressed, in a more prosperous condition. It cannot now be ascertained what grains were taken into the estimate or whether the village, the talook, or the town prices were considered. It is improbable that the price lists of subsequent years have been prepared on the same principles as these which ruled in the original commutation. An instance occurred not long since when the Collector of the District remarked on prices having fallen below the Commutation Rate while the Sub-Collector at the same time was reporting a rise *above* the commutation price. The commutation might have been fair at the period at which it was determined but its efficiency as an adjusting standard of assessment would depend upon the calculations of the amount of produce, to which it was applied, being justly formed and the area yielding such produce being justly ascertained. How far these calculations were correct may be gathered from the fact, that the measurement of a field was but a rough guess and the estimate of the produce was merely a fixed sum levied from the village and distributed over the fields. It is moreover difficult to say how far the decreased profit from the sale of the commoner grains has been compensated by the introduction of new products. The increased cultivation of the sugar-cane in some districts* the indigo of Cuddapah, Salem and South Arcot and the ground nut of the latter district together with the cotton of Tinnevely, Salem and Coimbatore, the Pepper, Coffee and Ginger of Malabar have doubtless proved remunerative to the ryot. The abolition of the tobacco monopoly has thrown open a profitable culture to the farmer of Coimbatore and Malabar. The Board are however impressed with the conviction that the Government demands press heavily in some districts and they are of opinion that no general measure of relief founded upon the Commutation Rates can be arranged. With respect to the final query of Government the Board observe, that in their opinion it would be better for the Government and the ryot if a periodical revision of the Commutation Rates should take place. Thirty years is the term fixed in the North Western Provinces, and in Bombay, and might be adopted in the Madras Presidency.

The Collector of Ganjam in a letter, dated 27th January, 1853 says that in the sense used by the Board of Revenue "commuta-

* Ganjam, Vizagapatam, Rajahmundry, Cuddapah, North Arcot and Salem.

tion" does not exist in his District. He therefore merely forwards a list of the prices of grain from Fusly, 1220 to 1229 compared with those from Fusly, 1251 to Fusly, 1260. This statement shews that the position of the cultivator is less favourable now than it was before. But his loss in consequence of a fall in prices is made up by the very large increase that has recently taken place in the growth of the cane and the manufacture of sugar.* The average assessment per acre in 1853 was Rupees 2-5-5. The Collector admits that the condition of the ryot might be improved but is of opinion that no extraordinary measures are required.

The Collector of Vizagapatam in a Report, dated 20th July, 1854 is unable to give any precise information on the effect of past and present prices on the condition of the ryot. The Permanent settlement in this District was based upon the price of Paddy alone, all other species of grain were ignored. On its conclusion the limit to the Zemindar's demands was the capability of the Ryots to pay. In favourable seasons the ryots are able to pay their rents, in unfavourable seasons they fall into arrears. As might be expected under such circumstances, there are very few substantial ryots in the district. Statements of the price of grain from Fusly, 1236 to 1245 as compared with the price from Fusly, 1251 to 1260, are forwarded by the Collector of Rajahmundry on the 19th January, 1853. These shew that the price has fallen. The condition of the ryots has however been improved by a large exportation of grain, the introduction of the joint renting system and by the construction of Public Works.

The Collector of Masulipatam submits on the 6th January, 1853 a statement of the prices of grain. The falling off in the price of grain has been considerable.

In Gunttoor there has never been any general survey or any scale of commutation prices. The Collector in a letter dated 31st December, 1852 to the Board of Revenue states that as a general rule the Government share was half the gross produce after deducting fees and perquisites. The prices of grain from Fusly, 1251 to 1254 have ranged lower than at any former period on records. He has no hesitation in declaring that under a continuance of such prices the assessment would be ruinous.

The Collector of Nellore submits his report to the Board on the 13th April, 1853. He states that there are three rates of assessment in his district. The extent of land cultivated in Fusly, 1211 was 2,42,668 acres, in Fusly, 1261 it was 3,56,151 acres. The only product which has of late years been introduced is Indigo. Sugar-cane is no longer cultivated, the farmer not being able to

* Statement of the cultivation of sugar-cane given in the Report, page 50.

compete with the Ceded Districts. The ryots have suffered much and become impoverished by the present rates of commutation. Dry grains commuted at 30 Rs. a candy shew but an average value during the last 10 years of 19 Rs. A ryot therefore cultivating land assessed at 30 Rs. would on selling the two candies of grain, the estimated production of the land, realize but an average of 33 Rs. leaving him after payment of his 30 Rs. a balance of 3 Rs. or about 25 per cent. of what he ought to realize. The consequence is that agriculture is unwillingly pursued, and the dittum amount is not merely artificially, but compulsorily kept up. Mr. Ratliff therefore suggests that the Commutation Rates be lowered and to commute annually. Mr. Elton, the Collector of Nellore shews that out of every Rs. 100 worth of wet grain produce, the ryot has to himself but 21 Rs. 7 pice or a little more than a fifth to meet the cost of cultivation of seed and labour, of means and of support. The figures below shew this:—

	Wet grain.	Dry grain.
Ryot's share for 100 Rupees worth of produce in Fusly, 1236, ...	42 1 2	40 9 10
Do. do. in Fusly, 1261, ...	32 9 7	24 5 3
Loss to ryot by fall in prices, ...	9 7 7	16 4 7
Additional loss in converting Govern- ment share into money, ...	11 9 0	19 14 5
Total loss to Ryot, ...	21 0 7	36 3 0

The cause of the fall in prices is owing to increase of cultivation and to non-exportation. The readiest method by which to relieve the ryot is "to reduce the assessment of each field to a grain demand at the Commutation Rate, convert it again into money at the current market prices in each year, and fix that as the present assessment, remitting the difference between it and the existing demand."

In Chingleput the survey field money assessment prevails in 1652 villages. These were settled at various dates and by different officers. The Government share of the produce varies from 39 to 50 per cent. of the gross. Indigo has been introduced. The dues of the village servants average from 16 to 24 per cent. the rest is the ryot's share. Thus the ryot may get as little as 26 per cent. of the gross produce, and may obtain as much as 51 per cent. The Collector is not prepared to relieve the ryot by a general reduction of the assessment. The average price of grain being above that upon which the ryotwar settlement was based.

The Collector of Bellary states that shortly after the assumption of the district by the British the lands were surveyed and assessed and that a report on the subject was submitted by Colonel Munro on the 15th of August, 1857. He appends a statement of the prices of grain for 10 years before the settlement and for the 10 years ending in 1853. By this statement it is shewn that the prices of grain have fallen. The ryots are consequently exceedingly poor and of the whole body of the farmers only 17 per cent. are in good circumstances, *i. e.* are able to discharge their kists without having recourse to the money lenders; of the remaining 83 per cent., half are obliged to borrow money by mortgaging their crops and stock and the rest are obliged to sell their crops so soon as they are reaped and even their stock. The remedy has been frequently suggested in a modification of the land assessment as the Board of Revenue are fully aware.

The land tax of Cuddapah, the Collector, in a letter dated 28th October, 1853 says, has been fixed with reference to the average collections obtained, by the former Government and the quality of the soil. On a comparison of the price of grain between the first ten years after the settlement, and the ten years prior to Fualy, 1269, the price of all species of grain has very much decreased, with the exception of Bengal gram. The ryots however have not sustained very heavy losses for Sir Thomas Munro struck off from the original assessment 25 per cent. upon dry land, 33-5-4 per cent. upon land dependent upon wells, and 25 per cent. upon wet land dependent on tanks and channels. Some lands are still left waste on account of their too high assessment. The Collector says that Indigo is now the staple of the district. The whole area is 41,02,356 acres and is assessed at Rs. 46,26,633, out of this but 11,92,645 acres are cultivated upon which there is an assessment of Rs. 22,84,633, leaving 29,09,711 acres, assessed at Rs. 23,42,000, waste. The revenue is collected with great facility.

In Kurnool the Commutation system does not obtain.

The Collector of Salem states that the only source of information on the subject of commutation prices is Col. Read's report on the survey, dated 4th April, 1800. From this he learns that the commutation price was fixed for dry grains at 1 R. for 35-375 Madras measures and for wet grains at 1 R. for 33-8125 Madras measures. Annexed to this report there is a statement of the average price of grain from Fusly, 1202 to 1206 as compared with that from Fualy, 1258 to 1262. This shews that the prices have fallen. The fall averages from Rs. 26-10 to Rs. 48-11-5 per cent. The comparison is however of but little value. The Collector affirms that "over-assessment at the survey has

had an injurious effect both upon the interests of the Government and the people." He therefore recommends a reduction. He would reduce the higher rates on Poonjah and Nunjah lands and would make a considerable reduction in the garden rates. The above remarks do not apply to the Balaghat talooks of Ossoor and Denkcottah. "The villages in these talooks were divided into three classes with reference to their situation, population and other general circumstances, and a separate scale of rates for dry lands was appointed for each. Each scale consisted of 5 rates. In regard to wet lands, the tanks were divided into four classes, with a corresponding scale of rates, likewise 5 in number, for each class. The garden rate of assessment in the Ossoor talook was fixed at double the poonjah rate, and in Denkcottah, at the highest poonjah rate in each village."

The Collector on 28th August, 1854 reports on the assessment of North Arcot. His remarks do not apply to the 5 Southern talooks and Suttvaidd. "In calculating the assessment on nunjah lands, an annual average of the prices of shumbah and of navarah paddy, as they obtained in every village from Fusly, 1204 to 1215, was procured from the Curnums of each talook, and after excluding from these, two years of very high prices, a final average was struck for each of these grains, which, added together and divided by two, formed the commutation rate for all the lands in the talook from whence the lists were procured. In some cases, however, a difference exists in favour of villages remote from large towns. An instance of this occurs in the Cauveripauk talook, where there is one rate for villages within two miles from a large town, a second for those within six miles, and a third for those at a greater distance. In computing the rates for these, it appears, that the actual prices obtaining in the villages belonging to each of these three classes were taken separately. The teerwah dittum and the niraknamah for each talook give the commutation price actually taken and it appears that in most of the talooks, it was the average selling price of ten years. There is nothing whatever to shew how these alleged averages were obtained, or even from what source the yearly prices were taken. The best lands were assessed with reference to the rates selected for raggy and cumboo, and the inferior, with reference to those of the other descriptions of grain." When all demands are paid the ryot, on nunjah land obtains 56·2 per cent. on an average, and on poonjah he obtains 58·3 per cent. The Collector submits a statement shewing the extent of cultivation. Throughout the whole district, including the excepted talooks in Fusly, 1215 there were under cultivation 2,57,504 cawnies and in Fusly, 1262 there were 3,03,809 cawnies. There is

a return exhibiting the rise and fall of prices on Paddy in which there has been a fall of 33 per cent nearly. The cultivation of indigo and sugar-cane have been greatly extended. The Collector is of opinion that the assessment is too heavy and that the roads should be improved.

The Collector of South Arcot states that the commutation price of his district was fixed at Rs. 70 per garce. The rate appears to have been determined solely upon information obtained from merchants. The statement of annual prices which accompanies the report shews that the "commutation rate is less unfavourable to the ryot than the height of the poonjah assessment, which is based upon a moiety instead of a third portion of the gross produce, and in some instances on two crops instead of only upon one." The Collector begs to be permitted to abstain from expressing an opinion as to how far the ryots require relief. He however considers that the present assessment is unduly high.

In Tanjore the Collector on the 29th January, 1853 informs the Board of Revenue that the system of commutation applies only to the wet lands. In 1832 when Mr. Cotton fixed the Oloongoo assessment for the wet lands he adhered to the existing poonjah and bagayet rates which had been fixed in Fusly, 1217. The average standard niruck is 57.26 Madras measures per rupee. "The standard nirruck was fixed with reference to the price lists of former years which were framed as follows. Every 10 days a price list was forwarded from the talooks exhibiting the quantity of grain sold, the rate at which it sold, the name of the maganum and village, a monthly average for each maganum being struck on the rates thus reported from November to June, including a separate account from the first to the eleventh of July, the close of the season, the price for the *year* being fixed for each maganum, on an average taken from the aggregate *monthly* rates."

But little variation in the kind of grain grown has taken place since the fixing of the commutation prices. Paddy is the staple of the district and has ever been so, the poorer ryots living on rice. They are obliged to sell their produce at once in order to meet the Government demand and advantage is taken of their necessity by the purchaser. A statement is forwarded exhibiting the number of petty land-holders. Decennial price statements are submitted. From these returns it is apparent that the average value of grain falls below the standard, the difference for the last five years being on an average $8\frac{1}{2}$ per cent. The Collector is of opinion that the continuance of the market rates as in 1853 will render a temporary revision of the standard rate necessary.

After noticing the various systems and rates of commutations which existed at different periods from the first assumption of the country, the Collector of Trichinopoly states, that the average commutation prices were finally determined by Mr. Lushington in Fusly, 1231 at

57 Madras Measures of Vallan paddy for 1 R.

48½ of Caur, .. for ib.

44 of Pesahanum for ib.

Mr. Lushington seems to have acted on no definite principle in adopting these rates. The Government share of the gross produce is on an average 50 per cent. though in some villages it rises even to 60 or 55 per cent. In Fusly, 1212 the whole extent of land cultivated was 2,53,772 cawnies 5 goolies. In 1261 it was 3,22,352 cawnies 28 goolies. No product has been introduced into this district since its assumption by the British. The settlement bears heavily upon the poorer ryots who are obliged to dispose of their harvest at once, in order to meet the Government demand against them. Since Fusly, 1258 there has been a depreciation of the prices of grain as appears from the statements annexed to the report. The ryots complain "not so much against the assessment as the extraordinary deficiency in the fertility of the soil, the scanty outturn of the produce as compared with former years, and the inaccuracy and inequality of the measurement of their fields." The Collector believes that these complaints are reasonable.

The Collector of Madura submits to the Board of Revenue a report relative to the commutation prices fixed in the talooks of Madacolum, Tiroomungalum and Meylore, at the survey. Statement No. 1 which accompanies the Collector's letter contains the commutation prices for dry, wet and garden lands. The principle on which the rate was fixed appears to be that of an average. The extent of cultivation at the time the commutation rates were fixed is not known., the Collector however sends a comparative statement. In Fusly, 1212, 3,43,777 cawnies of land were under cultivation, and in 1261 there were 3,70,564. The assessment may be considered comparatively moderate and lands in general bear a saleable value. The Collector is of opinion that the ryots of this District do not require a special remission but that they should participate in the benefit if any general reduction of taxation were to take place throughout the country.

In Tinnevely for the dry and garden lands there are no rates of commutation fixed. The highest rate paid by both is Rs. 10-3-0 and the lowest Rs. 0-3-3 per chain. As regards nunjah lands several systems have been in operation. The last of these was the Oloongoo. According to this system the highest rate

paid for one grain cottah is Rs. 3-6-9 and the lowest is Rs. 2-1-11. Forty-four per cent. of the gross produce is taken as the Government assessment. The extent of nunjah cultivation in Fusly, 1232 was seed cottahs 97,371, and the average of the 5 years ending with Fusly, 1261 was 98,843. No new produce has been introduced since the former period. The Collector submits decennial price lists. They do not shew any material decrease.

The Commutation Rates in the Northern Division of Coimbatore were calculated from the average prices of the seven years preceding the time of settlement. In the southern division the average selling prices of a few places only, as they obtained 12 years prior to the settlement, seem to have regulated the rate of taxation. In Coimbatore the proportion of the produce taken for the assessment of Government is $\frac{3}{4}$ ths with reference to poonjah lands, $\frac{1}{3}$ rd for gardens and $\frac{1}{2}$ for nunjah. The Collector forwards a statement shewing the cultivation of the several descriptions of grain now sown. In Fusly, 1260 the amount of land cultivated was 12,58,531 cawnies. The increased value of new products has benefited the ryot, but they require more labour and expense than the generality of the inhabitants can afford. The same grains are sown now (1853) by the poorer classes as 50 years ago. The increase on the price of grain is not much, the percentage averaging for paddy, cumboo, cholum and raghee from Rs. 5-7-5 to Rs. 24-6-10 and for horse gram 60. A statement is appended to the report exhibiting the profit obtained by the ryots from present prices compared with Commutation Rates. Decennial statements of prices are submitted. The Collector says that in some instances the Government demand is "fully as much as the land can bear, in others it is more, again in a few it is favourable." This is pretty clearly shewn by the quantity of waste land to be found in every talook and needs no lengthened explanation. The Collector of Canara in his letter dated 9th August, 1855 replying to the queries of the Board of Revenue, states that he cannot now ascertain distinctly the rate at which the original settlement of the district was determined. The Government portion is $\frac{1}{3}$ rd of the gross or $\frac{2}{3}$ rd of the net produce of the land; but so enormous a taxation is in practice reduced by the low estimate at which the productive power of the land is estimated, when applications for new lands are received. On the old estates the assessment absorbs the whole of the landlord's share. The fluctuation of prices is severely felt, and the Collector considers that relief can alone be afforded by a fresh examination of the capabilities of the estates. A statement of the price of grain is appended.

The Collector of Malabar affirms that in his district the commutation prices on the wet lands were fixed at the time of the Mahomedan Government and have since remained unaltered. Those on dry lands were, when the settlement was made, calculated on the average selling prices for the ten years antecedent to Fusly, 1256. On the former, the Circar share of the gross produce ranges from 30 to 50 per cent. and on the latter 20 per cent. for Moddom and Eloos and 12 per cent. for Ponom. The Commutation Rates are unfavourable to the ryots, but they derive returns from so many sources not brought to account that it does not appear that they require relief. Decennial grain prices are affixed.

CORRESPONDENCE ON ATTACHING LIGHTNING CONDUCTORS TO POWDER MAGAZINES.

Indian Records, No. XXII.

THE papers which form this number of the Government Selections are of a controversial character. In 1838, Sir William O'Shaughnessy* was requested by the late Military Board to report upon the expediency of attaching Lightning Conductors to Powder Magazines. He published three reports, all of which were unfavourable to the use of conductors. The two first of these reports were transmitted by the Hon'ble Court of Directors for the opinions of Professors Faraday and Daniell, and the last report was referred to Professors Faraday and Wheatstone. These three gentlemen combated seriatim all the arguments adduced by Sir William O'Shaughnessy.

The subject matter of the report is introduced by a selection from Arago's Meteorological Essays on the general utility of lightning conductors. He says that "if lightning conductors are asked for and erected, it is simply out of deference to the decisions of the Academies" and notices that many object to their use, asserting that they call down the thunder-bolt on the buildings upon which they are elevated, and endanger the neighbouring houses, by inviting the descent of the storm cloud, which might else have passed on and harmlessly discharged its contents. He however, asserts that it is "a matter of fact" that lightning conductors have preserved the buildings upon which they have been established. He instances that the damage done to Strasburg Cathedral by lightning was for-

* Superintendent, Electric Telegraphs in India.

merly such as to occasion considerable expense. Since the erection of a lightning conductor no damage has been sustained and this item of expenditure has disappeared from the Municipal budget. Many other examples are given. On the 22nd December, 1838 the late Military Board, in consequence of the blowing up of the Powder Magazine at Dum-Dum by gunpowder ignited by lightning, addressed a letter to Dr. O'Shaughnessy requesting his opinion upon the efficacy of lightning conductors. On the 27th December, 1838 Dr. O'Shaughnessy acknowledges the letter from the Military Board. He states that the subject to be reported on, is one of great difficulty. Lightning conductors even when properly constructed are by no means the infallible protection so generally imagined. Biot has affirmed that within sixty feet interval between conductors no accident can happen, yet in Chowringhee alone, in an area of one square mile, where there are upwards of 300 lightning conductors, accidents frequently occur both in protected and unprotected houses. He attributes these accidents chiefly to "the vertical window rods" which have all the danger of ill-contrived conductors.

Dr. O'Shaughnessy is of opinion that a powder magazine, rounded in outline, of trifling elevation, containing no metallic furniture, removed from other buildings and not necessarily in the contiguity of conducting objects, stands scarcely any more chance of being struck by lightning than an equal area of soil. And moreover that from the "lateral discharge"* there is a positive danger in employing conductors near powder magazines. With regard to the materials and dimensions of conducting bars, he observes that it is unnecessary to construct them of copper or to make them one inch in diameter. Iron can be preserved bright by attaching to it small pieces of zinc. If the point be gilt or platinized, the rod will corrode much more rapidly than if unprotected. The arguments brought forward to shew the inexpediency of lightning conductors as applied to powder magazines are :—

1. That these buildings, are not more exposed than an equal area of ordinary ground.
2. That a discharge may occur too great for the capacity of a single conductor, in which case the electricity will divide itself.
3. That though the discharge may pass to the ground, the lateral electric disturbance may occasion an explosion within the magazine.

* The nature of which is explained in Appendix H.

The Military Board thank Dr. O'Shaughnessy for his report and request to be informed whether in his opinion a series of conductors would add to the security of a Magazine. Dr. O'Shaughnessy in reply states that a multiplicity of conductors, though it would obviate all danger from direct discharge, would increase that from lateral discharge. Professor Faraday in a letter dated 5th September, 1839 acknowledges the full weight of Dr. O'Shaughnessy's paper but is still of opinion that "conductors *well applied* are perfect defenders of buildings from lightning." He recommends copper conductors instead of iron, for, the former metal conducts electricity almost 7 times better than the latter. Conductors should be pointed, should not be placed far from the building and should be connected by plates of copper with moist earth. They should be of a certain height in relation to the area of the roof of the building. There is no fear of a lateral discharge from a *well-arranged* conductor. Professor Daniell on the 24th August, 1839 animadvertes upon the report of Dr. O'Shaughnessy. The Professor expresses his surprise that "the question of the efficacy of lightning conductors which has been considered as settled by all the leading philosophers in Europe and America after an experience of 100 years, should still be thought undetermined by some of the scientific men in the Hon'ble Company's service." Nothing can be more unfounded than the supposition that lightning conductors have the power of *attracting* a discharge of lightning to places where without them it would not occur. The path of the discharge is "determined by what may be the line of least resistance in the whole distance between the two great electrical surfaces" of which the conductor can form but a minute part, though it may control sufficient for the protection required. Again the lateral discharge is in fact only a division of a portion of the principal discharge from an insufficient conductor to another which can relieve it. Now the purpose of a lightning rod is to provide a sufficient conductor for the electric fluid which may fall upon it. Professor Daniell thinks that the electrical history of Chowringhee "must be extremely interesting and it would greatly benefit science if authentic facts were published." Dr. O'Shaughnessy however only mentions the facts upon hearsay. Professor Daniell states that the rod should be of copper, both because of its superior conducting power and since it is not liable to oxidation and corrosion. Dr. O'Shaughnessy submits his second report and promises that having once more referred to Professor Faraday he "will bow to a contrary decision with the full conviction that he has acted upon erroneous views" at the same time he deprecates that Mr. Daniell should have wandered from the question, which is simply "are we to attach lightning rods to *powder*

magazines, and if so how are we to place them so as to ensure the maximum of safety from every accident." Dr. O'Shaughnessy discusses in his second report these two questions :—

1. Would danger be diverted from a building, liable to be struck no more than an equal area of soil, by a lightning conductor ?

2. Could the conductor become a source of danger ?

Many instances of objects being struck in close proximity to lightning conductors are given in the report and from the facts mentioned, Dr. O'Shaughnessy says it is apparent "that there is more danger in giving one conductor to a magazine than in leaving it altogether unprovided." The report then goes on to explain what is meant by a lateral discharge and its existence is proved by experiment.

In many instances the lateral discharge has been seen to exist. Thus a flash struck the mast of H. M. ship *Rodney* as she was cruising in the Mediterranean, escaped from the mast 7 feet above the deck and was seen by all to go over the nettings and strike the sea at a short distance from the ship. Dr. O'Shaughnessy promises to collect the electrical history of Chowringhee and regrets that he cannot then appropriately notice the courteous remark of Mr. Daniell upon this subject. In a letter, supplementary to the 2nd report it is proposed to erect in lieu of iron or copper, "conductors of sheet copper attached to masonry pillars 3 feet square at the base, tapering to 1½ feet at 30 or 35 feet high and terminating in a light spar of 10 to 15 feet." Along this support a three inch copper strap should be fixed, which should be led into the ground as far from the building as economy would permit, but never less than 10 feet deep. Such conductors are erected because Dr. O'Shaughnessy is of opinion that it is the surface of conductors and not the mass which is required for the safe conveyance of the electrical discharge. Professor Daniell on the 10th May, 1841 reports upon the above. He observes that he cannot admit that the case of a properly constructed Magazine "arched and rounded and in its outline of low elevation" is altogether different from that of an ordinary house. In the grand system of natural operations carried on in a thunder storm even considerable elevations bear little proportion to the enormous surfaces which are brought under induction and do not influence the discharge to any extent, in proof of which the lightning has often been seen to strike the level of the sea, even in the vicinity of high masts of ships armed with conductors. Professor Daniell states that the only measure of the *capability* of a conductor to convey a discharge is its capability of resisting fusion. If it be fused by the discharge a considerable part must pass to the surround-

ing object. In the case of non-fusion a small portion would pass through a small interval of air from the main conductor to another good conductor placed at a very short distance from it. But one of the obvious precautions in erecting a lightning rod is to place it at a great distance from any such good conductor. With regard to the dangers to be apprehended from a lateral discharge Professor Daniell is of opinion that with properly constructed conductors there is nothing to be feared from it. In erecting lightning conductors it would be a fatal mistake to rely upon the surface without regard to the thickness of the metal. If there be one law of electricity which is better established than another, it is that the conducting power of all bodies is directly as the area of the section. Professor Faraday in his second report dated 9th June, 1841 says there are three points under which all that is for consideration may be arranged:—

First. Whether a good lightning conductor can cause a discharge where there would not be one otherwise?

Second. Whether when the electric fluid falls upon a conductor, a part may not pass from it in the form of lateral discharge and occasion harm?

Third. Whether, at the moment the lightning conductor is struck, it may by induction upon the gunpowder casks lined with copper, cause sparks to pass between them without any actual lateral passage of lightning from the conductor?

With regard to the first Professor Faraday thinks that a good conductor may attract lightning. It is to this quality that it owes much of its usefulness, but that it should cause a discharge upon itself and also upon a neighbouring object, and that not by a lateral discharge, is contrary to Professor Faraday's experience. The most important point is the second. Mr. Faraday repeats the words of his former report upon this subject, and says that a lightning conductor, if not of sufficient thickness and not well arranged as to its termination with the earth, may give lateral discharges, even when the quantity of electricity passing through it is not a thousandth part of that required for its fusion, or which the conductor could safely convey. But for this to happen it requires an arrangement which he has already protested against. He illustrates his position by an experiment. A good lightning conductor should be a copper rod one inch in diameter, should be well connected by copper plates with the moist ground or water and should rise high above and be placed near to the building to be protected. "It should not come near masses of metal in the building, as a metal roof, or an iron column, or leaden pipe or bell wires; or if it does, these should be metallically connected, with

it, at the same time the stored masses of powder should be purposely separated from each other." Surface has no influence over the power of a lightning rod and copper ribbons may not be used for a copper rod of equal superficies.

Mr. Faraday is of opinion that "the gunpowder casks lined with copper within the magazine" are perfectly protected, from sparks caused by induction, by the roof of the building, as the casks can only be exposed to the induction of the cloud before the spark passes.

The Honourable Court of Directors being satisfied with the opinions of Messrs. Faraday and Daniell directed that all magazines throughout India should be provided with lightning conductors. However on the 31st December, 1844, they again deem it advisable to ask the opinion of Dr. O'Shaughnessy upon the subject of attaching lightning conductors to gunpowder magazines. They adopt this course because Captain W. S. Pillans, Commissary of Ordnance at Cawnpore, in a letter addressed to the Board, had stated that it would not be expedient so to do and his opinion was fully concurred in by Captains Weller and Fraser of the Engineers. Accordingly on the 4th August, 1844 Dr. O'Shaughnessy submits a third report. The report is arranged under five heads :—

1. Can ordinary lightning conductors attract discharges on themselves?

2. Are they capable of exhausting silently the electricity of the clouds so as to render it harmless?

3. In conveying discharges do they ever permit a portion to leave them? If so under what circumstances does this occur?

4. When lightning conductors convey an electric discharge to the earth can this discharge produce sparks in adjacent metallic bodies by induction?

5. Assuming an affirmative answer to all these questions, can powder magazines be protected from the effect of lightning? Those electricians who contend that the conductor is strictly passive, *i. e.* has no attractive power, affirm that the very great area of "excited cloud and earth" renders the action of a mere point inappreciable, that lightning often avoids conductors, that pointed metallic bodies "exhaust the electricity of the clouds and cause them to shrink back and lastly that lightning has seldom been known to fall upon buildings involving in their construction metallic conductors." To all these statements Dr. O'Shaughnessy replies. He maintains that metallic rods have the power of commencing the discharge, that this commencement induces the following discharges to continue in the same route, that pointed conductors are struck with a

degree of frequency which seems impossible from their smallness, unless they possess attractive power. Dr. O'Shaughnessy under the second heading of his report observes that if the thunder cloud approach rapidly, if its area be great and the quantity of electricity be of that prodigious amount which is witnessed in Indian storms, then the exhausting power of the rod is too insignificant to prevent explosive discharge. The 3rd and 4th divisions of the report are considered together and are answered in the affirmative. With regard to the fifth head whether powder magazines may after all be protected, Dr. O'Shaughnessy observes "that the means of ensuring safety are still obviously within our reach." It is well known that we may discharge the most powerful batteries on a metal powder flask without the slightest danger to the contents. It is impossible to kill a bird in a wire cage by the electric fluid. He therefore recommends that at every six or ten feet of the length of a powder magazine, copper straps two inches wide be attached to the wall and carried over the roof down to the ground. These straps should all be in a vertical line. A similar band should run horizontally along the roof and have parallel bands at every six feet. At the level of the ground another horizontal band should run. All the inter-sections should be rivetted or soldered together and from each corner a copper rod with branches should be led into the ground. To protect Cawnpore magazine, in this manner, a building 110 feet long, 72 feet broad and 23 feet high would, according to the estimate given in the report cost Rs. 1500.

Dr. O'Shaughnessy again states that he considers a magazine exposed to greater risk with ordinary conductors than without them.

The third report was transmitted to Professor Faraday. Professor Faraday again states that nothing advanced in the report can at all tend to an alteration in his views. He therefore begs that his former report may be considered as an answer to this also. He attributes Dr. O'Shaughnessy's erroneous conclusion to a confusion of the *static* and *dynamic* effects of electricity.

On the 8th of August, 1845 Professor Wheatstone in compliance with the request of the Political and Military Committee transmits his opinion upon the 3rd report of Dr. O'Shaughnessy. He says that Dr. O'Shaughnessy has not adduced a single experiment in support of the efficacy of his system. He agrees with Dr. Faraday that while the plan proposed in the report will have no superiority in preventing lateral discharges, the insecurity will be augmented in "consequence of the liability of the flashes occurring between disconnected portions

of the ramified conductor itself." He is of opinion that the discussion has been productive of good.

On the 30th June, 1845 a report of by a Committee of Royal Engineers dated 3rd March, 1828 upon lightning conductors is transmitted for the information of the Court of Directors. The Committee in their report state that they requested information from several scientific members of the Council of the Royal Society. The conclusions they came to were the following :—

1. That the conductors should be metallic rods, elevated some feet above the highest ridge of the building to be protected, pointed at top and terminating either in water, which is the best arrangement, or in a moist stratum of earth at some distance from the building and that the lower end of the rod should fork out into more branches than one.

2. That the least oxidable metals are the best conductors. therefore copper is preferable to iron, but a mixed rod having the top of copper and the remainder of iron will answer the purpose.

3. That an iron rod used as a lightning conductor ought to have a diameter of an inch and $\frac{1}{2}$.

4. That the point or superficial application necessary for preserving an iron rod from corrosion will not affect its conducting powers. *Superficial* oxidations are not of much consequence.

5. That insulated conductors at the distance of 10 or 12 feet from the walls of a building are preferable to those which are attached to the building itself.

6. That in the case of conductors being attached to the building all abrupt turns should be avoided. Also that the rod should be in contact with some non-conducting substance.

7. That it is a point of the utmost importance to preserve lightning conductors in good repair.

8. That metallic ridges, hips and gutters may, if connected with metallic water-pipes leading outside into the drains below, answer the purpose of conductors.

9. That the practice of covering roofs with iron plates is not injurious to the safety of the building, provided that the metallic water-pipes be perfect, and that they do not terminate abruptly before reaching the ground.

10. That there is no objection to the use of metallic ridges, hips, gutters, &c. on the roofs of powder Magazines the same precaution being taken. Metallic roofs not connected with the ground are highly objectionable.

11. That there is no objection to the prevailing practice of covering the doors and window shutters of magazines with sheet copper.

12. That to any building in which more than the usual amount of iron is used there is no danger, provided that a continuity of the metal from the roof to the ground be obtained. After the receipt of this report the Hon'ble Court of Directors "have no hesitation in expressing their desire to the Governor General of India that lightning conductors be forthwith applied to all station Powder magazines at the three Presidencies."

The Appendix consists of extracts from a treatise by Sir William Snow Harris on thunder storms.

MEMOIR OF SATARA.

Bombay Records, No. XLI.—New Series.

ON the 1st May, 1854 a Memoir of Satara by Mr. T. Ogilvy, late Commissioner of that Principality, was submitted to Government. At the close of the late war in the Deccan, Satara was bestowed upon a descendant of Sivajee and certain Chiefs or Jageerdars were placed under his authority. They were bound to pay tribute or to aid the Raja with all their forces. The Raja on his part engaged to be at all times guided by the advice of the British Government and in time of war to place his resources at their disposal. The entire territory is divided into two parts by a chain of hills branching off from the Mahadeo Range near Phultun and running North and South for 50 or 60 miles, nearly to the banks of the Krishna near Walwa. The district to the west is hilly, well cultivated and productive, that to the east on the contrary is flat and barren, there is scarcely any rain and the population are predatory. This district, however, yields excellent pasturage. Under the Rajas the land tax was excessively high and the revenue system was ryotwar. Criminal justice was duly administered. Trifling cases were under the cognizance of local officers but important ones were decided in person by the Raja.

The machinery for the execution of civil justice was well organized and worked admirably. Suits to the value of 25 Rs. were disposed of by local officers, those of a more important nature by the Nyadishes, from whose judgment an appeal could be made to the Rajah. The Raja's revenues amounted to about 13,50,000 per annum. His expenditure was as follows :—

Privy Purse,	...	...	Rs. 5,00,000
Military Establishment,	...	...	Rs. 5,50,000
Civil and Criminal Justice, &c.,	...	...	Rs. 3,00,000

He was liberal in his expenditure on public works, endowed a hospital and died on 5th April, 1848. Before death he expressed a wish that he might adopt as a son, a boy by name Bulwuntrao Bhoslay, it was however determined to annex Satara. Mr. Frere was accordingly appointed Commissioner and was instructed to carry on "the business of the State." All proceeded quietly until May, 1850, when the Ranees rejecting the liberal offers of Government commenced a vexatious course of intrigue. At length a final and satisfactory arrangement was made in December, 1851. The lands and private property left by the Raja to the Ranees, which amounted to upwards of Rs. 15,00,000, was restored and divided amongst them. In addition a life allowance of Rs. 1,00,000 a year was settled on them in the following proportions :—

To the Senior Ranee, ...	Rs. 45,000
To the Second „	Rs. 30,000
To the Third „	Rs. 25,000

And they were allowed to retain for life the old and new palaces. The Ranees gave up to Venkajec Rajee from their own allowances and from their hereditary property Rs. 60,000 a year.

Bulwuntrao Bhoslay retained possession of the property amounting to about Rs. 1,42,471, given to him by the late Raja, and received in addition an allowance of 600 Rs. a month. To the widow, adopted son, and the daughter of the Ex-Raja were assigned liberal pensions, to each Rs. 1,200, a month. An allowance of Rs. 100, per mensem has been given for the support of the mother, widow, two sons and a daughter of the late Moolzofur Jung, the illegitimate son of Bhow Saheb, second brother of the late Raja of Satara. The whole of the establishments of the late Government have been remodelled. The cavalry of the late Raja have been partially disbanded and partially enrolled in the lightwing of the Southern Muratha Irregular Horse, which regiment costs about Rs. 2,71,092, per annum. The artillery were disbanded and the "local infantry are to be converted into a police corps." Much has been done to improve the province since its annexation, by roads and works of irrigation. All tropical products flourish, including grapes, figs, oranges, coffee, cotton, sugar, opium and tobacco.

SATARA JAGEERDARS.

Bombay Records, No. XLI.—New Series.

ON the accession of the late Raja, the supervision over the Satara Jageerdars, which had been previously exercised by

the Ex-Raja was transferred to the British Government, who, controlled the financial condition and civil and criminal administration of their estates. The Jageerdars have no longer the power of life and death, neither can their territories be viewed as foreign States, since offences committed in their territories by British subjects or by subjects of the Jageerdars no longer involve important international questions. The Jageerdar of Akulkot owes his title of Raja to the circumstance of his ancestors having been patronised by the house of Satara. Futteh Sing Bhoslay made himself independent of the Peshwa and ruled for 40 years he was succeeded by his son Malojeerao Bhoslay in April, 1823. The present Raja is Shahajee Rajé Bhoslay, he is now 36 years of age and owing to his improvidence the estate is encumbered. He has one, son aged 20 years, and one younger brother. He usually resides at Kusba Akulkot. The Jageer is not tributary but furnishes 93 horsemen to the Honorable Company, they do duty in the Collectorate of Sholapoor. The estimated gross annual income is Rs. 1,46,027, in 1820 the annual revenue from the Jageer was Rs. 3,00,000. The Jageer is situated to the west of the Nizam's territory and contains an area of 986 square miles. The usual means of irrigation is by wells. The roads are mere cart-tracks passable only in fair weather. The Hindoo religion prevails; Murathee, Canarese and Hindoostanee are spoken, the prevailing castes are Brahmins, Wysees and Shoodras. Civil cases are disposed of in the Court of the Nyadish, notices and summonses thence issue. In case of the non-attendance of the defendants decisions are passed *ex parte*. Appeals lie to the Raja if made within a month. Trifling criminal cases are disposed of by the Foujdar, the Raja tries graver offences. Capital cases alone, are committed by the Raja for trial before the Political Court of Criminal Judicature presided over by the Collector of Sholapoor. The rule of the Raja is mild and the people are happy and contented. Indebtedness is the only difficulty this Chieftain has to contend with. To the report is appended an agreement, dated 3rd July, 1820, between the Hon'ble East India Company and the Raja. All persons having committed crimes within the Jageer and who take shelter in the British territories are to be given up to the Raja.

In 1779 the Jageer of PruteeNidhee then valued at Rs. 12,00,000 came into the possession of Purushram Punt Prutee Nidhee. He was imprisoned by the Peshwa but was released in 1810 and a territory yielding two lakhs of rupees was restored to him. The present holder of the Jageer is Purushram Punt Prutee Nidhee, Sirdar of the 1st class, aged 23 years. He resides generally at Satara but has residences at Kurar and Anud in the

Satara districts. He has one son, born 22nd March, 1854 named Krushnrao, the report enumerates the principal persons of his Court. He pays no tribute to Government, but the Punt Sucheo holds Sahotra Babs, equal to about 6 per cent. on the collections, on some of his villages. The gross annual revenue is Rs. 73,014. The Jageer is made up of various estates scattered throughout the Satara territory. The religions are Hindoo and Mahomedan, the languages are as in the abovementioned Jageer. The population in 1850 was 65,929.

Civil and criminal justice are administered in imitation of the mode in the Satara territory. A Schoolmaster from the Board of Education has been appointed at Atparee. In the other villages there are indigenous Schools. In 1820 an agreement was entered into between the Honorable East India Company and the Punt Prutee Nidhee, which placed the latter under the Government of the Rajah of Satara, the report contains the agreement.

In 1822, Chimnaje Shunkur Punt Sucheo was adopted by Shunkur Rao. The name of the present Chief is Chimnaje Rugoonath Punt Sucheo. He is aged 25, and has one son, his usual place of residence is Bhore, the report enumerates the principal persons of his Court. "On his adoption in 1837, he was required to pay a Nuzur of Rs. 53,021-8-0 to the Raja of Satara, and a Nuzur of Rs. 27,703 to the British Government, on account of the possessions held by the Jageerdar within the Raja's and British Territory." He pays to Government an annual tribute of Rs. 5275. The estimated gross annual revenue of the Jageer is Rs. 1,16,075, in 1827 it was Rs. 2,50,000. The country is watered from wells and dams upon the streams. The roads can only be travelled by bullocks or horses. The religion of the people of this Jageer is Hindoo and the language is Murathee. Civil and criminal justice are administered after the mode in the Satara Territory. There are indigenous Schools but no new educational measures have been adopted. On the 22nd April, 1820 an agreement was entered into between the Hon'ble East India Company and the Punt Sucheo, when the Punt was placed under the dominion of the Raja of Satara. The report contains the treaty, as also another dated 3d February, 1839 consequent on the adoption of Ramjee Appa by the late Punt Sucheo Rughoonath Rao.

The Chief of the Jageer of Phultun is Moodojeerao Naik Nimbalkur, Sirdar of the first class, now aged 19. On the 22d April, 1821 an agreement was entered into with the Nimbalkur by which he was to be considered as a Jageerdar of the Raja of Satara, but under the guarantee of the British Government. The report contains the treaty. The usual place of residence of

the present Chief is Phultun, he had in 1854 no issue. The report enumerates the principal persons of his Court. This Jageerdar supports 75 irregular cavalry, for the service of Government, at an annual expense of Rs. 23,304. The estimated gross annual revenue is Rs. 70,621. The area of the Jageer is about 400 square miles and is bounded on the North by the Poona Zilla, on the other sides by the Satara territory. There are 3720 beegas under cultivation, these are irrigated by wells. The only road practicable for carts is from Sholapoor to the coast. "The finances of this Jageer have been so arranged, that whilst provision has been made for the liquidation of the debts in a few years, Rs. 3,000 a year are to be set apart for the construction of roads, which are much wanted to develop the resources of the estate." The religions are Hindoo and Mahomedan, the languages spoken are Murathee, Canarese, and Hindoostanee. Civil and criminal justice are administered as in the Satara territory. Measures are being taken for the establishment of an English School at Phultun. A Vaccinator was appointed in A. D. 1845. In A. D. 1854 he had vaccinated about 7,219 children, one-seventh of the population.

The Jut and Kurjee Mahals were in December, 1823 conferred upon Ramrao Dufié. They were then estimated at Rs. 1,90,000 but owing to mismanagement they did not yield above Rs. 4,0000. The present Chief is Amrotrao Dufié and his age is 24. In 1854 he had no male issue, the report enumerates the principal persons of his Court. He pays a Deshmookee Bab of Co's. Rs. 4,738-14 a year to Government, and supports for their service a contingent of 50 irregular cavalry at a yearly expense of Rs. 12,310. The estimated gross annual revenue is Rs. 61,652. The Jageer is situated to the South of the Satara territory and its area is about 700 square miles. "It is of the greatest importance to this Jageer that, notwithstanding its debts amounting to Rs. 46,651 a portion of its revenues should be devoted to the development of its resources by means of public works." The population in 1848 was estimated at 58,794, the religions and languages as in the Jageer of Phultun. Civil and criminal justice as in the Satara Territory. Measures are being taken for the establishment at Jut of an English School. There are indigenous Schools in the Jageer. A Vaccinator was appointed in 1849. In May, 1854 he had vaccinated 1-14th of the population. A treaty was entered into with the Dufié Kur on the 22d April, 1820 by which he was "considered a Jageerdar of the Raja of Satara, but under the guarantee of the British Government." "Some pains have been taken to give the minor Chiefs in the Satara territory an education that may enable them to conduct with credit the

important duties they are destined to discharge. The tendency of Muratha Chiefs is to fall into sloth and self-indulgence, and to leave their estates to be mismanaged by clever but unprincipled officials. It requires, therefore, constant watchfulness on the part of the Agent for the British Government to prevent the finances from falling into confusion, and the pay of the establishments from getting into arrears. The British Government being bound, not only by treaties with those Chiefs, but by the supremacy they hold in India, to require good government at their hands, a careful supervision over their affairs is absolutely necessary, for the sake of the Jageerdars themselves, as well as of the people subject to their authority."

HISTORY OF THE RAJAS OF SATARA.

Bombay Records, No. XLI.—New Series.

On the 1st January, 1827 Major General Briggs transmits to Government a few brief notes relative to the History of the Rajas of Satara and of the Satara Jageerdars.

In 1707 when Sahoojee was released by the Moguls, his aunt Tarabae ruled as Regent in the name of her son over the territory acquired by Sivajee. The dissensions between Tarabae and her nephew Sahoojee led to a division of interests, and Sumbajee, the half-brother of her son Raja Ram kept possession of the southern tract, till at length his title to a separate kingdom was admitted and a Partition Treaty was drawn up on the 26th April, 1731. The treaty is appended to the report. At this time the Peshwas of Satara made demands for Chouth on the Empire of the Mogul and began to make those conquests which contributed to the extent of their sway. In 1749 the house of Sivajee reached the plenitude of its power. The sum for the privy purse for the Peshwa then scarcely exceeded 6 lakhs as appears from a document (Appendix B) attached. On the death of Sahoojee the expenditure was still farther reduced as is shewn by an abstract account of the receipts and disbursement prepared in 1760 by Nana Saheb, a translation of which is appended. The Rajas of Satara were always respectably and even liberally treated by the Peshwas. Nana Furnavees directs, in a letter still extant and dated 17th May, 1791, Sudaseo Anund "not to allow the marriage ceremony of the Raja's daughter to exceed 50,000 Rs." The movements of troops, preparations for war and the favourable results of battles and campaigns were regularly reported to the Raja. However, after the effort made by the Raja of Satara to emancipate himself in February, 1798, the treat-

ment of the Rajas underwent a change. Henceforth they were close prisoners and allowed only a mock dignity. At the close of the war motives of policy induced the British Government to raise the fallen dynasty and a territory was accordingly assigned to the Raja of Satara. The history of the Satara Jageerdars has been summarised above.

HISTORY OF THE BHONSLAYS OF SATARA.

Bombay Records, No. XLI.—New Series.

On the 15th April, 1848 Mr. H. B. E. Frere, the Resident at Satara transmits to Government a narrative of the early history of the Bhonslays.

The heroic genealogy of this house is traced through the Ranas of Odeypoor and Cheytore to the Sissoday Raja of Asseer conquered and slain by Shahlivahan whose era commences in A. D. 77. The only historical value of the legend is, that it corroborates other proofs that the Bhonslays were of Rajpoot origin. Their authentic history commences with Kellojee who was succeeded as head of the house by Mallojee. Mallojee built the tank at Mahadeo and was, with the title of Raja, "commander of 1,000 horse in charge of the important fort at Sewnere with the Poona and Soopa Purgunas in Jageer." He was succeeded in his Jageers by Shahjee, the father of Venkajee and Sivajee. The history of Sivajee is detailed at length in the report, he was engaged in constant warfare with Aurungzebe and with the Beejapoor Government from which, just before his death, he exacted as the price of his alliance, the cession of the claims of sovereignty over the Carnatic and Tanjore districts. Sivajee died on the 5th April, 1630. His son Sumbajee was then in the fort of Punala. A conspiracy was entered into by his step-mother Soyerabae to seize his person and to place her own son Raja Ram on the throne. Raja Ram obtained the throne, but the attempt to seize Sumbajee failed. Dissension soon broke out amongst the conspirators and Sumbajee ascended his father's throne. He behaved with great cruelty to his opponents and imprisoned Raja Ram. Finally he gave himself up to sensuality, was captured in a state of intoxication by a party of Mogul troops and was publicly tortured and executed by the orders of Aurungzebe at Tolapoor. Raja Ram succeeded as Regent during the minority of Sumbajee's son, Shahoo, who was not long afterwards taken prisoner by the Moguls. Raja Ram died at Singur in March, 1700. Immediately on his death Tarabae his "elder widow" proclaimed her own

son Sivajee. But on Aurungzebe's death in 1707 Shahoo was released by his successor and promised great additions to his kingdom if he would remain faithful to the Moguls. Shahoo quickly made himself master of Satara and imprisoned Tarabae. But bred up in the indolence of a Mogul Court he left all affairs in the hands of an able minister. He died in a state of imbecility, childless but leaving an adopted son Ram Raja the grandson of Tarabae. Before his death he engifted the Peshwa with the sole management of the Muratha empire, he also directed that Kolhapoor, then governed by Sumbajee the son of Raja Ram, should be always considered as an independent kingdom. A partition treaty was in 1731 executed between the two kingdoms, a translation of which is appended. Ram Raja, who succeeded, died on the 12th December, 1777, having a short time before his death adopted Abba Saheb the son of Trimbukjee Bhonslay. This adopted son was formally enthroned under the title of Shahoo. He was always kept a close prisoner. His son Purtab Sing succeeded and was closely confined by the Peshwa Bajee Rao. He and his family were captured after the action of Ashteh, 20th February, 1818, by the British and on the 11th April he was formally enthroned by the Commissioner. On the 25th September, 1819 a treaty was concluded between the British Government and the Raja ceding to him the districts he subsequently possessed. On his part he was bound to hold his territory subordinate to the British Government, not to increase or diminish his military force without its sanction and to abstain from holding all intercourse with persons not his subjects excepting through the Resident. The British Government charged itself with the defence of his kingdom. The Raja violated his treaty, was deposed in 1839, and died at Benares in 1847. He left only one daughter but was reported to have adopted Bulwunt Sing Bhonslay, as his son. His next brother having in 1821 died without issue the third brother Shahjee alias Appa Saheb succeeded in A. D. 1839 and died 5th April, 1848, leaving no issue. The report contains a proclamation issued on the 11th February, 1818, by the Honorable Mountstuart Elphinstone and the propositions made to Bajee Rao on the 1st of June, 1818, and accepted by him.

CLIMATE OF SATARA.

Bombay Records, No. XLI.—New Series.

THE small tract of Satara comprises from west to east three different lines of climate. The mountain climate of the chain

of the Western Ghats "characterised by a highly rarefied air, a cool temperature, and almost continuous heavy rain, with dense fogs, during the south-west monsoon." The second division comprises a tract of from 30 to 40 miles in breadth lying between the base of the Western Ghats and a range of hills which branch off from the Mahadeo Hills about six or eight miles east from the Salpa Ghat and run nearly parallel to the Western Ghats. This tract consists of a succession of valleys at an elevation of from 2,000 to 2,500 feet watered by the Upper Krishna, the Koina, Yena, and Wasna. Here the heat and aridity of the summer months are moderated by regular sea-breezes; while a moderate fall of rain and an agreeable temperature characterise the climate.

The eastern and largest section of Satara consists of open inland plains. The climate is marked by dry bleak winds in the cold months, by great heat, untempered by sea breezes and extreme aridity in the hot months and by scanty rains and frequent droughts the influence of the south-west monsoon being scarcely felt. The cantonment of Satara lies in Lat. 17° 40' N., and Long. 74° 2' E., nearly in the centre of the second division. It is built upon a gently rising ridge. The town of Satara is situated immediately under the hills and is exposed to greater heat and receives more rain than the cantonment. It is supplied with excellent water conveyed by aqueducts from the summit of Uteshwur, whereas the water of the cantonment is brackish and is supplied by wells. The hot season sets in about the beginning of March and the rainy season lasts from the 10th to the 20th June. In this season there is liability to excessive transitions of temperature between the day and the night. The average fall of rain from 1850—54 was 39½ inches of which two-thirds fell during the monsoon months. The month of October connects the rainy and the cold season, which commences in the first week of November. The temperature in the four winter months, excluding October, ranges from 68½° to 76½°. The climate of Satara in its physical and physiological properties holds an intermediate place between the low-lying provinces of Guzerat and the Konkun and the mountain stations. A table of meteorological observations from 1844 to 1847 is appended.

DISEASES OF SATARA.

Bombay Records, No. XLI.—New Series.

SATARA has proved singularly healthy to European officers and their families. Fevers are rare except in the case of those

who have contracted them elsewhere. When a case of primary remittent fever occurs it is generally of an insidious and dangerous character. Sporadic bowel complaints, are less common than at Poona. Of the diseases incidental to natives fevers stand at the head of the list. They amount to nearly one-sixth of the whole cases treated, cutaneous diseases are next in point of frequency and constitute about one-tenth of the cases treated. Rheumatism is seldom met with. Dysentery and diarrhoea are neither frequent or common, and occur only during the rainy season. Dyspeptic affections and dracunculus are very prevalent. In the Company's 3 regiments stationed at Satara the cases of guinea worm have usually increased during each successive year of residence, whilst in the Raja's infantry regiment there has been comparatively little increase. Scrofulous affections are of frequent occurrence. Pulmonary diseases and hepatic affections are rare. Paralytic affections are frequently met with. Hemiplegia is the most common form which the disease assumes and the speech is much less frequently affected by it than in Europe. Humid asthma is not unfrequently met with amongst the aged. Few other diseases are deserving of particular notice. The discharge of larvæ, from the nose and more rarely from the ear is not at all an uncommon affection with the natives.

CENSUS OF THE SATARA DISTRICTS.

Bombay Records, No. XLI.—New Series.

THE Census under the supervision of Mr. H. B. E. Frere was taken on the 15th September, 1848. The month of September was chosen as being a general harvest month and one of the best for ascertaining the stationary population. The Census tables are appended to the report. The total population of the lapsed Satara districts was 9,63,069, of the Jageers was 3,61,453 thus giving a grand total of 13,24,508, of this number 6,89,286 were males and 6,35,222 were females. The number of houses in the lapsed districts was 1,50,608, that in the Jageers was 62,954 from which we have a total of 2,13,562, of these only 65,709 were tiled. The number of vehicles in the lapsed districts was 8682 and in the Jageers 1633. Out of these 10,315 carts, 6,614 had wheels of stone. In the Jageers and lapsed districts there were 67 elephants, 28,359 horses, 270 camels 7,69,163 cows and bullocks, 1,92,978 buffaloes, 7,35,769 sheep and goats and 8630 asses and mules. From the tables it is apparent that the females above 60 years of age are every where in excess of the males, in the general proportion of about 11

males to 17 females. Between the ages of 13 and 60 the males are every where, except in the Walwey and Koregaum Petas and Phultun Jageer in excess of the females, the proportion being 56 males to 53 females. Under 12 there are 63 male children to 47½ females. On the whole males are in excess of females in the proportion of 86 to 79. The general proportion of persons in a family is 5½ths and of children under 13 about 1½ths. The great paucity of the means of transport as shewn by the returns of vehicles will "hardly escape the notice of Government." Akulkot with 77,000 inhabitants has but 100 vehicles and several of the Satara districts are as badly off. The small Jageer of Phultun possessing three lines of road passable for carts is the best in this respect. With a population of 47,000 it has 568 carts. The reason for this deficiency of the means of transport is the want of good roads.

REVENUES AND RESOURCES OF THE LAPSED SATARA TERRITORY.

Bombay Records, No. XLI.—New Series.

MR. T. OGILVY, late Commissioner of Satara reports upon the revenue settlement of that territory for the official year ending 30th April, 1851. From the report it appears that under the Ex Raja, the late Raja and the British Government, the gross revenues averaged Rs. 31,80,377, Rs. 31,20,350, and Rs. 30,80,746 respectively. The actual realisations were Rs. 14,33,241, Rs. 13,64,280 and Rs. 15,72,173 under each, whilst the disbursements were Rs. 13,79,549, Rs. 13,76,895 and Rs. 14,25,052. There was a surplus during the first period of Rs. 53,692 a deficiency during the second of Rs. 12,615 and a surplus during the last period of Rs. 1,47,121. At the time of the report it was anticipated, that revenues to the amount of Rs. 1,50,000 would be abandoned, as arising from objectionable sources, but, as the pensions then amounted to Rs. 3,23,329-11 per annum it was thought that when they were reduced to the ordinary average of 6,000 Rs. there would still be a surplus of about Rs. 1,50,000 a year. The outstanding balances which have accumulated since 1825-26 amount to Rs. 11,36,027-9-10, exclusive of Rs. 83,359-10 on account of fees leviable from caste suitors, of these a small portion only will be recoverable on account of the time elapsed and the defective state of the revenue records.

The territory of Satara comprises the 11 districts of "Satara,

Turgaum, Kurar, Walwey, Jowlee, Wace, Koregaum, Khana-poor, Khutao, Punderpore and Beejapoor, exclusive of the territories of independent Chiefs." The first six named are the most populous and fertile, the last four have been depopulated by war and famine. In the western division of Satara the irrigated lands produce four crops and the unirrigated lands two crops in a season, whilst in the east the irrigated lands produce only two and the unirrigated but one. The culturable land in the territory contains 29,23,167 beegas of which 26,62,283 beegas are cultivated. The land under cultivation yields Rs. 31,60,795 or Rs. 3,58,333 less than the Kumal. Of that little more than half is due to Government. The culturable land lying waste would if cultivated yield Rs. 78,930. The assessment is in all cases upon the land and not upon the crop. On irrigated land it averages Rs. 20-8, on unirrigated Rs. 14, on rice land Rs. 17 and on hill side land Re. 1-13 a beega. A reduction of the assessment is necessary on account of the fall in prices. Under the Rajas the emoluments of hereditary officers were very inadequate, they are now raised to a standard more commensurate with their responsibilities. The village accounts which were kept on loose leaves and never balanced at the end of the year, are now regularly kept. The day books are balanced daily and the accounts of individuals yearly; receipt books are given to each cultivator, in which their payments are regularly entered. The same improvements, have been introduced into the mode of keeping district accounts. Formerly no care was taken to realise the revenue by instalment and the ryots were pressed for payment when they should have been left undisturbed to their agricultural pursuits. Instalments are now collected at those seasons when it is most convenient for the cultivators to pay them and the district officers are made responsible. It was always necessary under the native rule to make large yearly remissions which however rarely reached those who needed them. Fields whose crops are stated to have failed are now minutely inspected by the village and district officers and remissions are granted after careful enquiry. Annexed to the report there is a list of the cereals and pulses and of the oil and fibrous plants which this country now yields. In 1851, 9515 beegas of native sugar-cane and 5,535 of Mauritius cane were grown. Of tobacco there were 5,884 beegas and of cotton 11,155 beegas. It is estimated that about 36,727 acres might be cultivated with cotton in the Satara district. But in 1851 upwards of 4,000 beegas of land, sown with New Orleans cotton seed, owing to an unusually adverse season almost entirely failed. Works for the improvement of old roads and the creating new ones are proceeding most energetically. The report touches upon

the flax, fruit trees, timber and salt of the district and proceeds to name the objectionable taxes. The native sheep are good, but the attempt to improve the breed by crossing them with the merino sheep failed. The country still furnishes a small supply of horses for exportation to the Nizam's territory. Mr. Ogilvy strongly recommends the adoption of Captain Hart's proposition to devote Rs. 1,00,000 a year to irrigation. The reporter suggests that he may be permitted to grant land on Meeras tenure, which compels the Ryot to pay the rent of his land even when it lies waste. The quit rents in the Beejapoor district require revision. Statements of the quantity of cotton grown from 1849 to 1851 are annexed to the reports as also are appendices whose contents have been summarised above.

OLD PUBLIC BUILDINGS AND MANUSCRIPTS OF BEEJAPPOOR.

Bombay Records, No. XLI.—New Series.

THE report commences by giving extracts from certain letters which passed between the Resident and the late-Raja relative to the preservation of certain ancient buildings.

In 1849 Mr. Frere submits a report regarding the Arabic MSS. at Beejapore. He says that they are apparently the remains of a Royal Library. They are kept in the Assur Mahal one of the few large buildings which are still in tolerable preservation. It stands upon a large tank and consists of a great hall enclosed on three sides and open only to the east, on which side the roof is supported by lofty wooden columns of great size, between these formerly hung enormous screens of rich cloth. The hall is 120 feet long by 85 feet broad. The remainder of the building is divided into two stories. The upper floor contains some rooms one of which is used for stores and the other is the shrine of the Tubrook. Between them is "the usual T-shaped audience chamber, the horizontal portion occupying the length of the building, and the perpendicular opening out as a kind of gallery or balcony, looking into the great hall. From this gallery the relics are annually exposed to the view of the crowd below.

The lower or ground-floor is occupied by a room under that in which the relics are kept, whence unbelievers are excluded, lest they should do disrespect to the relics above. Adjoining this room is the one appropriated to the library.

This latter is a small apartment, fitted up with shelves, divid-

ed into cupboards, in which the books were formerly arranged ; but the white-ants had found their way through the walls in various directions, and the books are now kept in boxes.

They appear to have been entirely neglected of late years, till visited by the late Mr. C. D'Ochoa, a French subject of Spanish descent, who travelled in this country six or eight years ago." A translation of the catalogue drawn up in 1849 by Humeed-ood-deen Hukeem of the manuscripts of the Library prepared by Mr. J. C. Erskine is appended.

On the 10th December, 1852 the Rev. J. Wilson, D. D. says that the collection at Beejapore is one of considerable value. Its special interest consists however in its forming the body of the works which were the fountains of religion and law to the Beejapoor dynasty from A. D. 1489 to A. D. 1672. In Grammar and Lexicography it contains few manuscripts of any value, in Logic it is copious, in Arithmetic, Mathematics and Astronomy it does not offer much of interest, though only a few of them are known, of works of poetry, geography and history it is nearly entirely destitute. Dr. Wilson recommends that the entire collection should be sent to the Court of Directors, it should not be broken up in Bombay.

On the 23d February, 1850, Mr. Hart prepared an estimate for the probable expense of repairing the Ebram Roza, the Taj Bowree, Mehtree Mahal, Jumma Musjid, Assur Moobaruk, Goola Goomuz, Begum Tulao and Torwa Null. The estimate amounted to Rs. 5200, which sum however will not put the buildings in efficient repair but will merely stop the leaks and support the portions most injured. Captain Hart did not recommend the expenditure of even this sum being of opinion that it was more urgently required for works of practical utility. In this Mr. Frere differs from Mr. Hart. He says that the ruin of buildings which are both larger and finer than anything to be found at Ahmedabad or Aurungabad and inferior only, if inferior, to the finest buildings at Delhi and Agra will be "certain, speedy, absolute, and irremediable." He therefore trusts that for the sake of art and for the character of the Government the amount applied for may be sanctioned. He further mentions that Captain Hart having had occasion to remove the library from the Assur Moobaruk the fragments of a black, letter quarto English Bible and a black letter Portuguese book were discovered, these give further evidence of the magnitude of a library which 200 years ago was thus not without specimens of the literature of foreign nations and creeds. The report concludes with a translation of a letter, from the last Mahomedan King of Beejapore to Aurungzebe, the date of which was some time previous to A. D. 1686.

ASSESSMENT OF THE OMERKOTE DISTRICT.

Bombay Records, No. XL.—New Series.

LIEUTENANT Colonel John Jacob, c. b. in a letter to the Governor of Bombay dated the 11th June, 1856 remarks upon Lieut. Tyrwhitt's reports on the settlements effected by him in the Omerkote district. This district is divided into the lands lying contiguous to the Narra and to those bordering upon the tract of sand-hills. To the latter Lieut. Tyrwhitt's report is confined. Until two years ago all these lands were held in lease by the heads of the Soda tribe, and though the revenue collected by Government was but 6000 Rs., yet under this arrangement there was much oppression. In 1854-55 the fields were leased to a Syud for Rs. 12,500. In 1855-56 a light assessment was fixed which amounted to Rs. 24,000, or quadruple of that which was realised under the lease of the Sodas. Fields of from 1 to 10 beegas in extent pay 2 Rs. annually, those containing from 10—20 pay 3 Rs., those from 20 to 60 pay 5, whilst all above 60 pay 8 Rs. The average assessment is therefore 3 annas a beega. Cultivation under this light assessment has greatly increased. Lieutenant Tyrwhitt further states that many old pukka wells are being brought under repair. Many roads have been made. Of these a statement is annexed as also is a list of buildings constructed since the conquest. To the report are attached, a memorandum of Mr. Frere's regarding the assessment of the desert lands of Omerkote, a statement shewing the amount of land occupied free of assessment and a table exhibiting the annual revenue from 1843 to 1856. In 1843 it was Rs. 411-11-3 and in 1856 Rs. 20,663-10-6.* There is a further statement of the average size of all the fields of the Omerkote district from one beega and upwards.

REVENUE SETTLEMENT OF THE THURR DISTRICT.

Bombay Records, No. XL.—New Series.

ON the 3rd June, 1856 the Acting Commissioner of Sind transmits to the Governor of Bombay letters from Lieutenant Shortt reporting the completion of the Revenue Settlement in the Thurr. The areas brought under survey and settlement consist of a light sandy soil, generally poor, and barely remu-

* Of this sum Rs. 5,133-8-11 form the revenue of Nubbasur, previously included in the Jooda Talooka.

nerative. The cost of the survey has been Rs. 1308-7-6. The population is estimated at 29,700 of whom some 3000 are merchants, 3000 Mussulman shepherds and the remaining 23,700 are cultivators or herdsmen. As a whole the people are emphatically pastoral in their habits. The pasturage in the sand-hills is nutritious and the breed of cattle is fine. The assessment has been calculated upon the average price of the staple produce bajree—as this grain has been selling in the cheapest markets of the district. The capabilities of the soil do not vary so as to cause any great difference between the rates levied in any two localities. In no instance is the assessment higher than 8 annas a beega, whilst the average is 3 annas. The term of the settlement is 10 years. The financial result of the settlement is satisfactory. The statement appended to the report shows that the annual assessment now recommended will amount to Rs. 16,428-11-3. The largest revenue collected during the past ten years has been Rs. 10,527-4-11 thus shewing an increase of Rs. 5901-6-4 under the proposed settlement. This increase is owing to the extended cultivation and the abolition of customs and frontier dues. In a country so entirely dependent upon rain as the Thurr, the reporter suggests that “the cultivators should be relieved of the chance of the total failure of crops in years when no rain falls or so little as not to admit of the grain being sown.” Out of 13 years from 1843 to 1856, 7 have been years of famine. The whole of the land under cultivation in the Thurr is about 46 square miles. The area of Thurr is 4,500 square miles. At present immense tracts of land are kept without cultivation and without water, merely from the opposition of the headmen of the villages whose chief and indeed sole wealth being cattle, they oppose any efforts towards cultivation. Lieutenant Shortt recommends that to each village a Patel should be appointed who should be paid by having a small portion of waste land rent free. Various statements are affixed to the report which have been summarized above.

THURR AND PARKUR DISTRICTS.

Bombay Records, No. XL.—New Series.

On the 21st January, 1856 the Commissioner of Sind forwards a report from Lieutenant Raikes on the Thurr and Parkur Districts to the Governor of Bombay. Mr. Frere remarks that these districts comprise an area of 6,100 square miles and a population of 44,000 souls which he esteems below the truth.

Geographically they are nothing more than the Southern extremity of the Great Desert which from Ferozepore to the Runn of Kutch separates the Valley of the Indus from the rest of India.

The Thurr consists of a tract of sand-hills shaped like the waves of the sea. They are not composed of moving sand and have probably been thrown up by volcanic action. They are covered with coarse nutritious grass.

The Parkur district forms a sort of Peninsula, jutting out into the Runn. Here primitive rocks take the place of sand-hills and the level country differs but little from that of Northern Guzerat. The western portions of Thurr are inhabited by tribes cognate to those of Sind. In Parkur there are no rivers, the surface is however covered with tanks of which very few are now perfect. They however appear to have been in use until within the last century and a half. Probably the decline of the Mogul Empire led to the dissolution of social order in the distant dependencies of Thurr and Parkur.

On the conquest of Sind the principal men of these districts went in a body to Colonel Roberts, then Resident at Bhooj and begged that they might be under his jurisdiction. Their request was submitted to the Governor of Sind and as no more politic arrangement could have been made, it was granted. Colonel Roberts determined to raise from the Khosas a body of irregular horse, to provide means for the subsistence of the Soda Chiefs and to abolish the transit duties. On the departure of Colonel Roberts, Lieutenant Raikes under the title of Deputy Magistrate and Collector of Kutch, fulfilled the duties of an office entirely distinct from the Kutch Agency. For some years past the expenses of the Thurr and Parkur districts have exceeded the income. In 1848-49 the revenue was 23,277 and the expenses 43,728, in 1854-55 the revenue was 7,172 and the charges 35,392. As there was little prospect of increasing the income, a proposition was made to the Rao of Kutch to undertake the management of the districts. Mr. Frere, before the arrangement was carried into effect, in the cold weather of 1854-55 visited the Thurr. There the principal Chiefs and leading men expressed strongly their opinions against the measure. They said "that the supposed wish of Government to get relieved from so unprofitable a possession was not unreasonable; that the Rao was an excellent ruler, and that they had great confidence in his governing them with justice,—but that he was mortal, and they had no guarantee for the character of his successor; that they had been now for some years under the British Government, in the enjoyment of a degree of peace and good government of which the memory of

man in their remote corner of the world afforded no precedent,—person and property were more secure than in any of the provinces around, and this was particularly the case in comparison with the neighbouring States of Marwar or Kattywar; crime of any kind was rare, violent crime almost unknown; and they always wound up with an urgent prayer that ‘Government would leave them as they were under Lieutenant Raikes, and *not sell them* to any one, neither to the Rao of Kutch nor to their own Chiefs collectively, nor to any one of them.’ On this latter point there seemed no difference of opinion between the Chiefs themselves and the lower orders. As Mr. Frere felt that the Government would not refuse their request, he, in conjunction with Lieutenant Raikes, considered what could be best done towards equalising the expenditure. The town duties, which had been relinquished soon after the conquest of Sind, could not again be imposed. Their abolition had been attended with the best effects. It has been reported more than once by the Deputy Collector “that in seasons which under the old system would have been years of famine, and when all the people would have quitted the country, they have left their families behind, and fed them with imported grain, sent in from the neighbouring provinces, to which a few of the men drove their cattle, instead of the whole tribe being obliged to emigrate bodily, as would have been their only resource while the town duties acted as a heavy tax on importation.”

The Mookjee Salt Lake was in former years a source of considerable revenue to the Chiefs. Mr. Frere accordingly proposes that the export of Salt from Mookjee be again allowed. Another method which Mr. Frere considers perfectly feasible is to “impose an excise on Ghee which is one of the few staples in Thurr.”

The money derived from these sources may with a better management of the land revenue, equalise in some measure the receipts and the expenditure.

The collections on account of the land revenue during the ten years 1845—55 inclusive varied from Rs. 2,432 to Rs. 10,527 and averaged about 7,000 Rs. per annum. Nearly all the fields in Thurr have been registered and a cash assessment has been fixed at a moderate rate. Mr. Frere suggests that a sum of 500 Rs. per annum be devoted to the repair of the tanks, he is of opinion that much in this way might be done to improve the revenue. The district is far from being a useless possession.

1st. It is a great cattle breeding country.

2nd. It affords a route for merchandise between Mandavee and Marwar. Mr. Frere suggests that the Thurr and Parkur Dis-

tricts be placed under a Political Agent and no longer be administered by an officer attached to another Agency. Mr. S. N. Raikes observes "that portion of the Thurr Dhat, or Little Desert, under my charge is a strip, as it were, lying on the northern side and along the Runn of Kutch." Along the edge of the Runn water may be obtained at the depth of one or two fathoms, in some places it is brackish but generally drinkable. The extremes of heat and cold are greater in Thurr than in Kutch, while the rainy seasons generally correspond.

The chief towns in Thurr with thlir populations, are noted below :—

" Veerawow, ..	1,537	Ballearee, ...	212
Mittee, ...	2,055	Peetapore, ...	458
Islamkote, ..	622	Guddra, ..	228
Deepla, ..	664		

The population of the Desert portion of the Deputy Collectorate is about 29,700, as before stated, of which 12,000 may be estimated as the number residing in the larger villages ; the remainder are scattered over the sand-hills in small hamlets or Thurrs, consisting of from five to fifty families."

About two-thirds of the inhabitants are Mussulmans, the remainder are Hindoos. In Parkur there are 26 villages and 10,700 inhabitants. Thus Lieutenant Raikes estimates the population at 40,400, whilst Mr. Frere states it at 44,000 which he considers "below the truth." Lieutenant Raikes after enumerating the relation of these districts to the Ameers of Sind at the conquest, proceeds to make the same suggestions as Mr. Frere. The appendix gives the present and proposed establishment for the Thurr and Parkur Districts. Lieutenant Colonel Jacob in a letter to the Secretary of the Government of Bombay, dated 28th June, 1856, states that the present method of governing these districts is most unsatisfactory. An officer is performing a work for which he receives nothing and which he can only do at the expense of the duties for which he is paid. Therefore in the spirit of Mr. Frere's report he suggests that a Political Superintendent should be appointed for the whole of the Western desert. The Hyderabad Collectorate might then dispense with an Assistant whose salary would partly cover the expense of the new office. In a further letter dated 10th July, 1856 he says that "the people of this district have the most strong and invincible objection to being transferred to the rule of Kutch." The Governor of Bombay in Council entirely concurs with all the suggestions of Mr. Frere with the exception of creating a Political Agent for Thurr and Parkur and is of opinion, that the officer in charge of these districts should be a first class Deputy

Collector and that his salary should be in proportion to the revenue he may derive therefrom.

THE BIGAREE CANAL, UPPER SIND.

Bombay Records, No. XLII.—New Series.

ON the 6th December, 1856, Lieutenant Colonel John Jacob, submits to the Bombay Government a report by Captain Mere-wether upon the enlargement of the Bigaree Canal. In 1851 this canal though one of the largest in Upper Sind was fast silt-ing up. The supply of water brought down was barely adequate for the small amount of existing cultivation or for the supply of the villagers dependent upon it for their drinking water. For want of an adequate supply of fresh water the wells became sometimes as salt as brine. From this cause not only was there at times the greatest distress but hundreds of acres of most ex-cellent land were lying waste. Lieutenant Colonel Jacob having brought to the notice of Mr. H. B. Frere the immense benefit which would accrue to all the country north of Shikarpore, if the Bigaree Canal were enlarged, his scheme was re-commended to the Government by the Commissioner of Sind and their approval was obtained. The work may be considered under four different heads. The enlargement of the Bigaree and Noorwah at their mouths, the enlargement of the Noorwah, throughout, the clearing of the Boodwah from its mouth to Jacobabad and the enlargement of the tail of the Bigaree. The estimate for the first work was Rs. 1,30,094, for the second and third was Rs. 25,344 but an additional grant of Rs. 10,000 was obtained for extending the Bigaree ten miles further to the westward of Kouroja to where the Jacobabad and Larkhana road passed and the grant for the execution of the fourth was Rs. 30,000. The first three works were performed by contract, but the last work was undertaken by the Zemindars holding or wishing to hold lands on that part of the canal. An agreement was entered into and each Zemindar was to perform a certain portion of the work in proportion to the area of his holding which would be watered by the new canal. In May, 1855 the agreement was signed and the work commenced after the inundation. The work of excavation apportioned amongst the Zemindars was 2,61,69,920 cubic feet. It was no easy task which they had to perform. In one part, the soil was all loose fine sand, where the banks crumbled and often fell in as fast as they were made, and a dust storm

nullified the works of days, by blowing the sand back into the hollow just dug. In another part, the soil would resemble rock, and it had to be loosened and taken out in blocks like stone. This was particularly the case in one spot part of the share allotted to a Belooch settler, Dad Mahomed Khan, Jukranee, nephew of the Chief of that tribe. In the year 1844 he had been a principal performer in the sack of Kumber, a village only fourteen miles from Larkhana. This man and his people pointed to the rock almost in despair. When the powra touched the ground, it recoiled as if from hard rock, yet with a little encouragement these men steadily persevered and ultimately finished their work. When the final inspection took place they pointed with just and honest pride to the success of their continued efforts and to the manner in which they had overcome the difficulty. From the enlargement of the tail of the Bigaree a fact of great importance has been learned and proved, viz. that without altering the capacity of the upper portion of a canal, merely having it clear and free of impediment, the capacity of the tail may be doubled without lowering the level of the water in any part one inch. Besides giving an abundant supply of water, this plan of canal cutting has the great advantage, by the increased rapidity of the stream, of preventing the deposit of silt in the channel; by causing it to be carried on and spread over the lands at the tail. The Bigaree now presents a channel 76 miles in length navigable throughout by the largest boats on the Indus. Recently, on the occasion of a present of artillery, arms and ammunition being sent by the British Government to the Khan of Khelat, these stores, instead of having to follow the old route from Sukkur via Jacobabad to Gundava, a journey of 120 miles, were conveyed by boats from Sukkur up the river to the mouth of the Bigaree and then were floated down to Khyra Ghuree. The astonishment of the people was very great and they flocked from all directions to see the fleet of sixteen boats in the heart of the desert, where boats had never been before. The advantages derived from so extensive an enlargement of the Bigaree Canal are of course numerous, but the principal one is the increase of revenue and consequent improvement in the condition of the people. In 1852 the gross revenue derived from both sides of the Bigaree and its branches was Rs. 65,000 the very next year when the works had been only partially completed it increased to Rs. 76,127. Last year the revenue amounted to Rs. 1,18,576 and in 1857-58 it is estimated that this will further be increased to upwards of a lakh and a half. Since 1852, nearly two lakhs of beegas have been given away in grants, under the terms of the new revenue settlement introduced in the frontier districts; that an annual

tax of Re. 1-4-0 per beega should be levied on one-third of the land in possession. This tax is not levied at once. The Zemindar is allowed the first year free, the second year he pays 15 annas and afterward the full amount, thus he is enabled to dig new canals and clear the ground. Another great advantage is the increase of fresh water. In 1847 the well water in the camp at Khanghur was so intensely salt that the horses would not drink it, but now the water in the wells remains as sweet and pure as may be found in any well in the immediate vicinity of the Indus. A map of the Bigaree Canal and its sections before and after enlargement is appended.

In a letter dated the 21st April, 1851, Lieutenant Colonel John Jacob estimates that the increase of cultivation consequent upon the enlargement of the Bigaree Canal will be in a year or two 5000 beegas and the increase of revenue to His Highness Meer Ali Morad will be Rs. 80,000 and that to the British Government will be Rs. 89,000. In a further letter he observes "that certain Zemindars, subjects of the Khan of Khelat are with my permission, making Canals, from both the Bigaree and Noorwah, those from the former to supply the lands near Rojan and the others leading into the heart of the desert ten miles north of Jacobabad." One-half of the revenue of all lands so cultivated beyond the British boundary accrues to the Government.

On the 17th July, 1856 Captain W. L. Merewether transmits to Lieutenant Colonel H. B. Turner, the Superintending Engineer in Sind a proposition for enlarging and clearing the Meerzawah, a large offshoot from the Bigaree Canal. To ensure a full outturn for the annual Government expenditure, he recommends that the Canal be put into thorough order, the channel cleared, tanks sloped and the spoil banks thrown back some distance and estimates the expenditure for these works and for making a new mouth at Rs. 14,771-8-10. Lieutenant Colonel Turner conceives that a very large increase of water cannot be withdrawn from the Bigaree for the Meerzawah without reducing the volume of the water on the Bigaree below the junction and that the shifting of the mouth of the Meerzawah will still further affect the volume. Lieutenant Colonel Jacob however recommends the scheme and says, that the Bigaree is certainly able to supply the water and the increased drain from the main feeder will prove advantageous. Drawing off more water down the Canal is equivalent to increasing its fall and thus augments the velocity of the stream. He estimates that the proposed work would return 50 per cent. annually upon its cost. Major General C. Waddington, Chief Engineer of Public Works observes, that there can be no doubt as to the truth of the statement of Lieutenant Colonel John Jacob, that the increased drain from the main feeder, consequent

on the clearance of the Meerzawah, will be equivalent to increasing its fall, but at the same time he considers, that the present channel of the Bigaree Canal will be insufficient to furnish a full supply both to the Meerzawah and to the lower part of its own channel. On the 2nd of September, 1856 the Government approve of the provision for the proposed cut being made in the general statement preparatory to the next budget, and, on the 6th December, 1856 pass a high encomium upon the merits of Captain Merewether and observe that the zeal and energy of Lieutenant Colonel Jacob appears to be participated in by all the young officers who have had the good fortune of being subjected to his instruction.

CASES INSTITUTED IN THE MADRAS COURT OF SMALL CAUSES.

For 1856.

ON the 3rd February, Mr. R. Burgass, the 1st Judge of the Madras Court of Small Causes forwarded to the Secretary of the Government, Fort St. George the returns for 1855-56. The Court has now been in existence for a little more than six years and the report is for the sixth year of its establishment. The number of cases was 22,869 of which 19,340 were instituted by natives and the remainder by Englishmen. Thus the proportion which English suits bear to Native suits is as 1 to 5.480. Of the whole number of the suits instituted 15,455, i. e. more than half, did not involve property to a larger amount than 10 Rs. The Court set for 289 days and heard and decided in that time 21,985 cases. Of the remaining suits 46 were undecided at the end of the year and 9,164 were compromised. Judgment was given for the plaintiff in 10,582 cases and 1,155 were non-suited. In 1855, 25,171 cases were decided, thus 1856 shews a falling off of 3186 suits for which no reason is assigned in the report, an explanation has however lately been afforded which the Government have declared perfectly satisfactory. The amount of fees and costs was Rs. 52,812-1, the value of the property involved in the suits instituted was Rs. 3,29,043-13-6, the amount repaid to suitors on account of compromised cases was Rs. 9,140-2-6, and the total net amount of fees actually carried to the credit of Government was Rs. 43,671-14-6. The expenses of the Court were Rs. 75,294, thus the expenditure was Rs. 31,622-1-6 in excess of the receipts. In 1855 the fees realized

and credited in the Cash Accounts amounted to Rs. 51,754-12 therefore in that year the excess of expenditure over the receipts was considerably lower.

CASES INSTITUTED IN THE SUPREME COURT SMALL CAUSE SIDE.

For 1856.

On the 23d January, 1857 Mr. William A. Serle transmits for the information of Government the returns of cases instituted in the Supreme Court Small Cause Side. In all there were 442 suits so instituted of which 90 involved a value of less than 100 Rs. 196 a value of more than 100 Rs. but less than 200 Rs. and 42 a value of more than 400 Rs. but less than 500 Rs. The judgments in 204 suits were for the plaintiffs, 43 were non-suited, 147 were compromised, 19 remained undecided and 5 were struck out. The maximum value litigated for in any one suit during 1856 was Rs. 500, the minimum Rs. 100 and the average value Rs. 202-13-7. The whole expenditure was Rs. 11,794-14, the net receipts were 12,783-2.

REVISION OF THE CHOWKEEDAREE ASSESSMENT, ZILLAH BAREILLY.

N. W. P. Records, No. XXIX.

Mr. Horne on the 28th January, 1846 reported the completion of the revision of the Chowkeedaree tax. In order that the nature of the revision, may be clearly understood, he gives a short resumé of what "had been done previously in this field." When the tax was first introduced a serious riot occurred but order having been enforced "the people seeing that the tax was for their good submitted." In 1844 Mr. Clarke appointed a Sudder punchayet, who increased the amount of the assessment 25 Rs. per cent. The great objection to Mr. Clarke's method was, that the Sudder punchayets usurped the functions of the Magistrate. This it has been Mr. Horne's chief endeavour to remedy. After the revision by Mr. Clarke the tax which had stood at Rs. 945-1-6 reached Rs. 1321-5-6 and the number of houses was

15,517. In 1815 however though the number of houses borne upon the register had reached 21,646, yet the amount of the tax had fallen off to Rs. 1,101-5-9. Nothing could prove more fully than this that the system was at fault, accordingly a revision was made and the result has been that the number of houses on the new register is 28,537 and the tax has nearly reached Rs. 2,000. The first point which strikes attention in the tabulated statements, which accompany the report, is the number of fresh discovered houses amounting in all to 6,591. This was owing to the fact that the punchayet always formed reserves, so that when any one favoured by them petitioned the Magistrate for a diminution in his rate of assessment, and the petition was referred to the punchayet, they reported accordingly and gave in the names of one or more of the reserves as able to pay the remitted tax. Thus no increase to the tax occurred and the amount fell off by deaths and removals. The revision of the assessment was carried out in the following manner. First a fair copy in Oordoo and English was separately prepared of the register of the first 13 gushts or divisions of the city. This done, Mr. Horne, having called together the residents of the Mohullah by beat of drum, proceeded to test the number of the houses on the register with the actual tickets which each resident, according to the order of Mr. Williams, was obliged to bear upon his house. Objections were then proposed against the assessment and were heard by the punchayet under the sanction of Mr. Horne. The revised Oordoo copy of the register was afterwards posted in the most central spot of the city and an officer was appointed to shew every one their particular assessment. Mr. Horne's rates differ but little from those prepared by Mr. Clarke in 1844 who assessed

Malgozars at the rate of $\frac{1}{4}$ per cent. on a Jumma	} One anna per cent.
of Rs. 500, exceeding that sum at	
Persons receiving monthly salaries at	One rupee per cent.
Dealers in Sugar, Europe goods, Bankers, &c. on	} One to two rupees.
each house from	
Punsarees, Dealers in brass, iron-ware, each house	} 4 to 8 annas per cent.
from	
Dealers in Cloth, Shoes, Taulivallahs, Lohars,	} 2 to 6 annas per cent.
Carpenters, &c. each house, from	
Workmen, ...	One anna.

N. B.—The tax is in no instance to exceed two rupees.

The chief difference in the present rates is, that workmen are entirely exempted, gold and silver wire drawers are taxed at one anna per wheel instead of four annas and the rates upon prostitutes, shroffs, Government employees, brahmins, fuqueers, &c. have been enhanced. Up to the date of the 1st report 31 petitions against the assessment have been made to the Com-

missioner. In two of these there had been mistakes, in three the appellants had made false statements and the remainder were men of large incomes. Mr. Horne does not consider that the tax weighs heavily upon the mass of the people, there are 28,537 houses and the present assessment only reaches Rs. 2000 which is less than two annas a house, or if the population of Bareilly which is estimated at 1,32,401 persons be considered, 2000 Rs. per annum is not a large sum. The report then proceeds to explain how the Chowkedaree tax is to be expended. In July, 1855 the cost of the establishment was Rs. 1000; but only the dregs of the population would serve as Chowkedars at 3 Rs. a month, so Mr. Horne recommends that their pay be increased to 4 Rs. a month, this will entail an additional expense of 560 Rs. Mr. Horne further proposes that the collecting establishment be increased, that the duties of Policemen, Jemadars, and Collectors of Tax be separated and that these should receive emoluments in proportion to the extent of their division and responsibility of their office. These reforms entail an additional outlay of 157 Rs. Thus there will be a balance of 283 Rs. for local improvements. Mr. Horne observes that it would be very desirable, did the funds admit of it, that there should be 100 more Chowkedars and the report concludes with some minor suggestions. The appendices have been summarized above. Mr. Alexander, the Commissioner of Rohilkund in transmitting Mr. Horne's report to Government observes, that the Chowkedaree tax has ever been unpopular with the native population and he very much doubts that the people "see that the tax is for their own good." He designates Mr. Horne's proceedings as useful, systematic and laborious. The Lieutenant Governor of the North West Provinces considers, that Mr. Horne's measures have been conducted with great judgment, moderation and fairness and that they deserve the approval of superior authority. Mr. C. Horne in a letter dated September 27th, 1856 supplies certain omissions in his report and observes that the revision has stood very fairly and "increased efficiency in the Police force has resulted."

SUICIDE IN BUNDELCUND:

N. W. P. Records, No. XXIX.

On the 3d of March, 1856, Dr. Clarke proceeded into the Bundelcund district but owing to the extreme heat, he was compelled to return after a tour of 17 days. In so short a time Dr.

Clarke was unable personally to enquire into the sanitary condition of the people or to see any of those diseases said to be common to the people of Bundelcund. But, by examining the Police records from 1851 to 1855 he has been enabled to tabulate the diseases. He moreover held frequent conversations with the "baidas" and endeavoured to elicit from them the native symptoms of the diseases known under the popular terms of "*baee gola*" and "*baee soolk*" which are assumed to be peculiar to Bundelcund and are so violent in their nature as to urge those attacked to self-destruction. Dr. Clarke considers that the "*baee gola*" and "*baee soolk*" are often nothing else but severe attacks of colic and he does not regard them "as either specific or as peculiar to Bundelcund." During 5 years from 1851 to 1855, 161 persons are reported to have committed suicide of whom 33 were males and 128 females. In 1150 of these cases physical causes and in 46 of them moral causes led to self destruction. Suicide prevails most in Punwaree pergunnah, where apparently the people are poorer and are compelled to live on food which generates abdominal disease. The police records do not afford sufficient data to judge of the effects of the seasons in developing suicidal tendencies. It is remarkable that more persons between the ages of 20 and 30, both male and female, have committed suicide, than at any other period of life. Dr. Clarke expresses his belief that though physical and moral causes may be regarded as incitements, yet they in no wise explain the *proneness* to suicide. He affirms that as a hereditary taint is passed on from parent to child, so is this peculiar habit of self destruction. The habit will continue to develop itself until some stringent and effective means are used to root it out which might be more readily discovered if every thannadar were furnished with a medical form at every inquest. Mr. C. Chester in forwarding Dr. Clarke's report to the Government of the N. W. Provinces thinks, that a want of moral sense and an ignorance of responsibility are the remote causes for so many suicides, and knows of no remedy but education. The proximate cause is apparently sickness, on which account he recommends the establishment of dispensaries.

To Dr. Clarke's report are appended certain remarks by Mr. F. O. Mayne and Mr. G. H. Freeling upon the same subject, but no new facts are elicited. Both of these gentlemen think that to punish self murderers for unsuccessful attempts at crime would be useless and that to cure their disease, their mental capacity and means of subsistence must be improved. The Lieutenant Governor in an answer to the reports of Messrs. Mayne and Freeling considers, that every case of suicide and its concurrent circumstances should be noted by every Tehsildar and that penal infliction should be reserved for cases of hardened feeling. He

further recommends the establishment of dispensaries, and notices that the lightest assessed pergunnahs shew the greatest number of suicides.

MEMORANDUM REGARDING TALOOKA KOTE.

N. W. P. Records, No. XXIX.

TALOOKA Kote in Pergunnah Ekdilla, Zillah Futtehpore, consists of 16 Mouzahs assessed at Rs. 18,805.

The tenure is extremely intricate and perplexing and to such an extent have lands become subdivided, that some of the proprietors are responsible for an assessment of only a pie or a fraction of a pie. The most embarrassing of all the Mouzahs is Kote Khas where a field is shared amongst some 20 proprietors. Sales and mortgages consequently create much perplexity and perhaps half a dozen proprietors will unite together to purchase another proprietor's share or half of it. Each pays what he can and each becomes a sharer in the *proportion of his payment*. The collections of this Talooka have always been effected with great trouble. Formerly at the time of the collection each sharer before the new settlement gave to the Jumokdar, his Jumoke of the amount for which he was responsible, which would be composed of a large number of items of shares or parts of shares in all or nearly all the villages of the Talooka. The account of each proprietor had then to be adjusted for shares mortgaged or held in mortgage. The settlement did not mend matters. The attempt to enforce Mouzahwar collections entirely failed and the old Jumoke system remained. The whole Talooka contained in effect one village and it was impossible to say that any single Mouzah was in balance or solvent. Now, a record of holdings and the distributions of proprietary right in them have been made in fourteen out of the sixteen villages and the late Rubbee was collected in other villages. The Jumoke system is confined to only Kote Khas assessed at Rs. 4,514 and Khurkhur assessed at Rs. 786. For the latter after innumerable difficulties the Khewut is being prepared and for the former a record of possession is being drawn up. The Jumoke system will soon be entirely abolished.

SUSPENSION BRIDGES IN THE NORTH WEST PROVINCES.

N. W. P. Records, No. XXIX.

COLONEL J. T. Boileau observes that the great desideratum in Suspension Bridges is the substitution of a road-way of more durable materials than those now in use, which consist for the most part of beams of wood, crossed by planks and metalled. Bar chain Suspension Bridges should be employed rather than wire cable especially in the hills. The total amount expended in the annual repairs of the Suspension Bridges in the North West Provinces has been Rs. 11,542-8-10 of which nearly a third was expended on the road-way. The sum expended for renewals and extensive repairs is Rs. 43,356-7-1 and for petty repairs Rs. 2,102-10-2. Thus there has been a total expenditure of Rs. 5,77,001-10-1 and as the total cost of construction was Rs. 1,88,405-5-11 the total expenditure is rather more than 305 per cent. upon the cost of the construction. The statements contain the details of the expenditure, cost and the time of building of every Suspension Bridge in existence in 1855, in the N. W. Provinces.

COMMERCE AND SHIPPING OF THE PORT OF RANGOON.

All imports into Rangoon pay duty at Rangoon, excepting goods for the use of the Company's or Her Majesty's forces and those which have already paid duty at one of the Indian ports or are for re-exportation.

The value of the imports from foreign ports and ports not subject to the Bengal Presidency was in the official year 1856-57 Rs. 26,86,576-5-2. The value of the goods which paid duty at Rangoon was Rs. 20,64,701-15-1. The duty amounted

to Rs. 1,10,108-6-7½.

United Kingdom.		Straits of Malacca.		Nicobar.		Mauritius.		Ceylon.		Coast of Africa.		Antwerp.		Bremen.		Holland.							
Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.						
15,21,759	15	1	4,80,101	5	4	28,057	8	1	2,156	11	2	982	12	9	6000	0	0	16,505	6	0	8,838	4	0

The chief imports are cotton goods, spices, spirits, manufactured metals and iron. The value of the cotton goods imported was Rs. 12,51,558-7 10 and the amount of duty levied was Rs. 58,059-2-10½.

The value of the Free imports by Sea into the Port of Rangoon was Rs. 6,21,874-6-1 of which there was treasure to the amount of Rs. 1,11,343.

The imports are from the United Kingdom, Straits of Malacca, Nicobar, Mauritius, Ceylon, Madras, the Coast of Africa, Antwerp, Bremen and Holland.

The accompanying table shews the relative value of the dutiable imports from each of the above places for the official year Rs. 1855-56

The export trade of Rangoon may be considered under two heads first those exports which pay duty and second those exports which are free or which are imports re-exported. The statement of the export trade of Rangoon does not include the ports subject to the Bengal Presidency.

The total value of the exports was Rs. 19,30,059-0-3. The duty levied amounted to Rs. 46,490-0-11½. The principal exports are Rice, Cutch, and Lead. The value of the Rice exported was Rs. 17,98,322-7-4 and the duty paid at the rate of one anna per bag of two maunds was Rs. 42,514-0-10½. The value of the Cutch exported was Rs. 66,000-0-11 and of the lead Rs. 13,206-11-11. Upon each of which a duty of 3 per cent. was

levied.

The value of the free exports to foreign ports and to ports not subject to the Bengal Presidency was Rs. 1,85,013. The most noticeable exports under this head are Cutch and Timber, the value exported of the former was Rs. 18,997 and of the latter Rs. 34,510-2-11. The Cutch had paid "Frontier Duty."

United Kingdom.		Straits of Malacca.		Hongkong.		France.		Antwerp.		Rotterdam.		Nisebar.								
Ra.	A. P.	Ra.	A. P.	Ra.	A. P.	Ra.	A. P.	Ra.	A. P.	Ra.	A. P.	Ra.	A. P.							
11,05,589	1	8	4,06,643	10	2	63,172	8	0	34,013	7	2	1,79,776	15	3	1,35,671	6	0	192	0	0

The amount of specie exported was Rs. 1,06,696-4 of which 81,000 Rs. went to the Straits of Malacca, the remaining sum Rs. 25,696-4-0 was sent to Madras. The value of the goods re-exported to Ports not subject to the Bengal Presidency was Rupees 2,2360-4-2.

The statement appended shews the value of the exports received by all foreign and Indian ports not subject to the Bengal Presidency.

The total number of the ships that arrived at the Port of Rangoon from ports not subject to the Bengal Presidency was for the year 1855 56, 165 possessing altogether a tonnage of 67,263 tons. Of this number 16 were native craft affording a tonnage of 1526 tons and 35 were for Home Ports having a capacity for tons 21,269½. The number of ships under British Colours was 91 and their amount of tonnage 34,425 tons and the number of steamers was 11 with a total capacity of 6,10,842 tons.

The total number of square rigged vessels which departed during the year was 151 and their tonnage was 54,405 tons. Of this number 7 steamers of 6,348 tons and 82 ships of 25,944 tons were under British Colours, 18 were native craft and 44 were from various foreign ports.

COMMERCE AND SHIPPING OF THE PORT OF BASSEIN.

IN the official year 1855-56 the total value of the dutiable imports into the port of Bassein was Rs. 84,020-15-2 and the gross amount of duty levied was Rs. 1770-1-9½. The chief imports were betel-nuts and tobacco, but they were numerous rather than large. During the same year Rs. 2,08,986-5-0

was the value of the goods imported for re-exportation or for the use of Her Majesty's forces and therefore paying no duty ; out of this sum however, there was treasure to the amount of Rs. 62,924-8.

The exports by sea for 1855-56, which paid duty, were of the value of Rs. 3,91,209-9-6 and the value of the free exports by sea was Rs. 1,34,240-6-4 including treasure to the amount of Rs. 5800.

The chief export is rice, of which grain Qrs. 11,66,949-2-4 valued at Rs. 3,87,915-1-4 were exported. The duty levied was 1 anna per bag of 2 maunds and the gross amount realised was Rs. 12,539-18-3. The value of the rice exported duty free was Rs. 70,172-7-4. By far the greatest portion of the rice was sent to the United Kingdom and to the Straits Settlements. The amount exported to the United Kingdom was Qrs. 9,42,217 valued at Rs. 3,00,545-0-8, that sent to the Straits Settlements was Qrs. 2,24,132-2-4 valued at Rs. 86,767-7-8. Goods are chiefly imported from the United Kingdom, Arracan, Straits Settlements, Nicobar, Rangoon, Moulmein, Fort St. George and Coringa.

The value of the imports from foreign ports and from ports not subject to the Bengal presidency for the official year 1855-56 is denoted by the following table :—

United King- dom.			Arracan.			Straits Settle- ments.			Nicobar.		
Ra.	A.	P.	Ra.	A.	P.	Ra.	A.	P.	Ra.	A.	P.
6,592	0	0	16,986	4	0	9,962	11	2	480	0	0

The United Kingdom, Arracan, Straits Settlements, Fort St. George, Nicobar, Rangoon, Moulmein enjoy the export trade. The value of the dutiable exports to the above places, for the official year 1856-57, is shewn by the accompanying table :—

United King- dom.			Arracan.			Straits Settle- ments.			Nicobar.			Fort St. George.		
Ra.	A.	P.	Ra.	A.	P.	Ra.	A.	P.	Ra.	A.	P.	Ra.	A.	P.
3,61,299	1	10	1,505	0	0	87,303	7	8	100	0	0	1,000	0	0

During the course of the year 76 square rigged vessels arrived. Their gross amount of tonnage was 19,482½ tons.

The departures during the same time were 80 square rigged vessels with a tonnage of 16,727 tons.

CENTRAL AND LOCAL MUSEUMS IN THE MADRAS PRESIDENCY.

Madras Records, No. XXXIX.

SURGEON Edward Balfour, the officer in charge of the Government Central Museum at Madras reports that the increasing popularity of the Museum is shewn from the increased number of visitors. The number of visitors during the year ending 31st June, 1856 was 3,68,873, two-thirds of the visitors to the London Zoological Gardens in 1854 and more than those to Kew Gardens or the British Museum in 1855. The expenditure for 1856-57 was Rs. 10,000, which gives only three pice for each visitor. The great change during the past year has been the formation of Zoological Gardens, there are now 360 animals out of 812 which have been purchased. Catalogues of the minerals, in illustration of systematic mineralogy, have been printed, as also has the catalogue of the Molluscos Animals in the Museum, now embracing 2,378 species and varieties. The catalogue of all the geological specimens has likewise been completed. In obedience to the orders of the Court of Directors the lime-stones in the Madras territories have been examined and Mr. Balfour is of opinion that the whole of the compact magnesian lime-stones which occur in the water shed of the Kistnah river and its tributaries are suitable for lithographic purposes. These stones are capable of being delivered in Madras at a twentieth part of the price of the German ones, the importation of which should therefore be discontinued.

No Museum had in June, 1856 been established in Bellary, but a Committee has been formed and there is a reasonable hope that there will be one before the close of 1857. At Coimbatore, the want of a suitable building at first delayed the commencement of the Museum and the Committee are now of opinion that it will be better to assist that at Ootacamund than establish a fresh one at Coimbatore.

At Cuddalore, a Museum has been established, but in 1856 there were only a few specimens and these of but little interest. There is, however, a well arranged series of characteristic rocks

presented by Dr. Burrell. The Museum was opened in February, 1856 in which month there were no less than 6827 visitors, in June there were but 369. The expenses for the year amounted to Rs. 546-15-8 and the Government allowance was Rs. 818-3-5. A house is being prepared for the Museum at Mangalore, 340 specimens of stuffed birds from Malabar and 130 shells from Ceylon have already been presented. Two cases of Mineralogical and Geological specimens have likewise been forwarded to the Museum, but at the time of the report had not been received. The expenditure during the half year ending 30th June, 1856 was 805 Rs.

The Ootacamund Museum was opened on the 19th May, 1856 in which month there were 197 visitors and in June 270. There is already a considerable collection of minerals, shells and woods besides various stuffed birds and animals. The Rajahmundry Museum was opened in a shed erected at a cost of 157 Rs. on the 7th June, 1856. The cost of a building suitable for a Museum is estimated at 4000 Rs., the Committee have raised for this purpose 1,000 Rs. and have asked from Government a grant for the remainder. The amount expended in 1855 was Rs. 632-13-7 and the sum received from Government and from private subscription was Rs. 1218-11-5. From the 1st January, to the 30th June, 1856 the expenditure was Rs. 225-2-4 and the receipts were Rs. 375-4 of which 275 Rs. were received from Government.

At Saugor on the 28th of July, 1856 no Museum had been established but a prospectus had been issued requesting subscriptions. The country is well adapted for geological and mineralogical research.

THE GUTTA PERCHA OF SOUTHERN INDIA.

Madras Records, No. XXXIX.

ACCORDING to Dr. Montgomerie, the word Gutta Percha is pure Malayan, gutta meaning the concrete juice of a plant and percha the name of the tree from which the juice in question is obtained. The tree which yields gutta percha is a native of the shores of Malacca, where the natives construct whips, buckets and vessels of various kinds out of the hardened juice. The first person who noticed the native use of this substance was Dr. Montgomerie in 1842. The tree which produces this substance is from 40 to 60 feet high and three or four feet in diameter. Its foliage is of a pale green colour on the upper side and covered with reddish brown hairs beneath. The tree flourishes luxuri-

antly in alluvial tracts at the foot of hills. It is found in the Travancore forests under the name of Pauchontee and in the forest tracts of Cochin it is called Pauly and on the cardamom table land Thempullay. The native method of procuring the juice is most destructive. They fell the tree and then make rings in the bark at distances of 10 or 12 inches, under each they place a cocoanut shell as the receptacle for the milky sap, which begins to flow instantly. The sap is collected in bamboos and boiled in order to drive off the watery particles. At Singapore, where the tree was formerly abundant, only a few small plants are to be found. Dr. Oxley estimates the produce of one tree at from 5 to 20 catties so that taking the average of 10 catties, it will require the destruction of 10 trees to produce one picul. Now from 1st January, 1845 to July, 1847, 6918 piculs were exported from Singapore, consequently 69,180 trees must have been destroyed. Gutta Percha is the best and easiest application for the management of fractures and from its great strength is peculiarly adopted for water conveyance. It has been found to possess "high insulating power" and is thus useful in electrical experiments but perhaps the most ingenious adaptation of the substance is to making stereotype plates. "A mould is taken by pressure, of a page of type in Gutta Percha, from this mould a cast is obtained on a cylinder of Gutta Percha and from this last the printing is carried on. The cylinder and mould are both made in about an hour." The other uses of gutta percha are too numerous to be mentioned here.

MATERIALS OF THE MADRAS PRESIDENCY FOR GRIND-STONES.

Madras Records, No. XXXIX.

On the 24th May, 1856, Mr. Balfour submits to Government the results of his investigations as to the materials useful for grinding and polishing mineral or metallic substances which are to be found in the Madras territories. From North Arcot 5 specimens have been received into the Central Museum and judging from the extensive "tracts of fossiliferous rocks met with in South Arcot, this district will probably be found capable of furnishing from its sand-stone and schistose strata, materials suitable for grind-stones and hones." In the Bellary District there are lime-stone, clay "and chlorite slates, and sand-stone strata of the Palæozoic period, with solitary hills of granite rocks rising abruptly from the level

country, and dykes of green-stone traversing the whole in an easterly and westerly direction." Nearly the whole of Cuddapah "consists of Palaeozoic rocks, clay-slates, &c. the prevailing colour of which is blue; lime-stones compact and granular, and sand-stones capping the highest hills. There are very few specimens of these rocks in the Museum, but it may be stated, generally, that hone-stones may be had almost throughout this large district." The greater portion of Chingleput consists of Plutonic rocks and one or two specimens of rock suitable for grinding purposes have been found and lodged in the Central Museum. Ganjam and Hyderabad specimens have also been obtained and the Guntoor district consists of sedimentary rocks, lime-stones, clay-slates and sand-stones; "many of the lime-stones are compact, some of them ornamental and fit to be used as marbles; some promise to answer as hone-stones, and some as lithographic stones." The prevailing rocks in Kurnool are compact lime-stones, sand-stones and clay-stones. The whole country could furnish slabs more or less suitable for hone-stones.

The hand specimens of sand-stones from Madura, now in the Museum, are all too small to allow of decided opinion as to their properties, but there are some rocks which merit attention. Mysore, Nellore, Rajahmundry and the Saugor and Nerbudda territories all furnish materials both for grind-stones and whet-stones. Mr. Balfour observes with regard to the Malayan Peninsula that it may be safely predicated that many sand-stones will be discovered therein suitable for grind-stones, and that one specimen has been received from Singapore. The Corundums of the Madras Presidency are not unworthy of notice. Their applications as grinding and polishing materials are well known to the natives, who use them in mass or mixed in lac. The origin of the word "corundum" is unknown. Sapphire, corundum and emery are only surpassed in hardness by the diamond and the only difference between the two latter seems to be that corundum contains no oxide of iron. The selling price of emery in London is from £10 to £15 a ton, and corundum is bought by Arab merchants at Mangalore and Tellicherry, at from £4 to £12 a ton, according to its quality. Corundum is found in Salem, North Arcot, Mysore and Travancore. In Southern India garnets, only one variety of which is valuable as a gem, are almost universally employed by the cutler, they are however very inferior to the corundum in hardness. Garnets are very common in the Southern parts of India and in the Hyderabad dominions at Gharliput, a mine of precious garnet occurs. The precious garnets are found at the depth of from 8 to 10 feet and when collected are gently pounded, those that break are thrown aside as worthless whilst those that survive the blows are rec-

konod of good quality. There is an appendix to the report on "abrasive and grinding materials" being extracts from Holtzapffel, Volume III. Lieutenant Newbold, F. R. S. reports upon the mines of corundum at Kulkairi and Golhushully. The mines lie about forty-five miles north-west of Seringapatam, those at Kulkairi are a series of excavations varying from two to twelve feet in depth. The corundum is thrown out, cleared and separated by the miners into four classes, namely, the red, the white, the scraps of both and the refuse. The first three form the article of commerce which is carried to Mangalore and Tellicherry. In 1842 the sum paid for working the mines was 530 Canteray pagodas for 2 years. Fine rubies have from time to time been discovered in many of the corundum localities. Lieutenant Newbold observes, that green garnet is of very rare occurrence and that the only locality on which he ever discovered it, was in the Salem district at Sankerydroog. Mr. Balfour having been requested by the late Military Board to furnish information regarding the grind-stones and hone-stones of Southern India adds to his report selections from various books in the belief that it may be of some value to collect together all that is known concerning these implements and the modes of preparing and using them.

MEMOIR ON THE AMRAWUTTI SCULPTURES.

Madras Records, No. XXXIX.

In the year 1801 and in the course of his duties as Surveyor General, Colonel Mackenzie heard of Sculptures in the neighbourhood of Ongol, with an intimation that they were *Jaina* in kind. These antiquities were at Amresvaram, which place he accordingly determined to inspect. Colonel Mackenzie discovered several sculptured slabs and published an account of his proceedings. Many of these marbles were brought down from Amrawutti in the Guntoor Collectorate to Madras by the Honorable Mr. Elliot and at the time that this report was written were lying in the Central Museum—exposed to the forenoon sun. Many of these marbles are of great beauty and some contain inscriptions of which a facsimile was published in the Journal of the Asiatic Society of Bengal. The report here proceeds to describe the designs upon the Sculptures brought to Madras by Mr. Elliot of which there are 90. Other Sculptures have been brought from Masulipatam and are fully described. The Rev. W. Taylor in

his report upon the marbles appears to consider that the Pali of Ceylon should be taken as the basis for the interpretation of the inscriptions upon the Sculptures. In his opinion "Amrawutti" means "pagus immortalis." The site of the town is on the river Krishna N.N.W. from Guntoor and not in the Berar province as is stated in the Asiatic Society's Journal, Vol. VI. No. 63. Some of the Sculptures may be safely dated as posterior to Krishna Raja's conquest of Kondavida and Cuttack in A. D. 1514-15. Only one tablet appears to bear a date and the power of the two letters used is not known. When the Sculpture is coarse the date is probably about A. D. 1,000. There is nothing to shew that the Amrawutti principality was earlier than the rise of the power at Warankal and that seems not to have been earlier than about A. D. 800.

All *Jaina* books are stated to have been destroyed when the people were massacred, with the one exception of the *Amara-cosha*, a lexicon of Sanscrit, still in popular use. The *Tamil Nigandu* is another exception and at Madura the *Naladiyar*, an ethic composition was spared when other *Bauddha* books were burnt. It is therefore in vain to seek elsewhere than among the temples and hierophants to find any remains of the *Jainas*, of the people who built Amrawutti. There seems to be but little reason to doubt but that they were some how or other more closely identified with the Greeks than with the *Hindus*. Their Sculptures were Grecian in type, and their inscriptions bear both Greek and Amrawutti letters. Besides the religions of the Greeks and *Jainas* were fitted to harmonise. In deifying men both agree, only the Greeks beatify warriors and the *Jainas* beatify *monachs*. The Greeks would seem to have "descendants still in India, known as *Lebbis* or *Jonacas*; who though Mussulman use the strictly vernacular languages. The terms *Jonaca* and *Yavana* are from a common derivation, as *Yavana* is derivable from *Ionia*; and the *Ionians*, the oldest of the Greeks, evinced by their name, their connexion with the farther east and their having been on one side of an early and great schism, which has left ramifications down to our day; and in which *Bauddhas* and *Jainas* bore their part. The *Saivas* held to the opposite side and were the adversaries, and in various instances, the exterminators of the *Jainas*." However, whatever may have been the doctrine or practice of the *Jainas* whether they worshipped women or snakes, the nine planets or the five elements deified, it is impossible not to pity their fate. "The Bartholemew tocsin, it would seem, was first sounded at *Kalyana* of the western *Chalukyas*, when the two *Basavas*, after founding a strange caricature of the *Saiva* system, proceeded to urge their

followers to exterminate the opposite system of the *Jainas*: king and people there falling victims to fanatic rage. Next following appear to have been the affairs at Warankal and Orissa. About that period an agent from the north, known in the South by the name of *Sampantar*, went to Madura, caused *Kuma Pandiyan* to become a *Saiva*, and to exterminate the *Bauddhas* destroying their books, one only excepted. About the same time occurred the massacres of *Jainas* in the *Tondamandalam* under *Adonda*, and later rulers. Here, the crushing in oil-mills was the ordinary mode. *Appar* was a *Jaina* and a Tamil poet. He turned *Saiva* and went about, with others, singing chants in honor of distinguished fanes. He relented; and went back to his early credence; and was crushed to death in an oil-mill. Last in order came the tragedy under *Pratapa Rudra* in the immediate neighbourhood of *Amravati*. The phrases "mild Hindus" and "tolerant Brahmans" were coined by individuals, who only saw sycophants crouching before conquerors, and fawning where they dared not to bite. But the history, at least of the Peninsula, as far as it has been developed, sternly rejects such terms; especially as regards *Saivas* and ultra *Saivas*; numbering these last among the fiercest of fanatics, as relentless persecutors, and the most violent in the work of human destruction." There is an appendix attached to the report containing various extracts upon the Bactrian kings and the traces of their power in India.

THE MADRAS RAILWAY FOR 1855.

Madras Records, No. XL.

THE first sod was cut on the 9th June, 1853 and the whole of the line from Madras to the western coast has been divided into 17 compartments. The report opens with an extract from the minutes of consultation dated the 10th July, 1856. It is there said "although the expectations formed in regard to the rapid progress of the line have not been realized to their full extent, the Government cannot but regard the results of the past year as on the whole satisfactory. At the beginning of the year the Company was authorized to commence work upon 70 miles, and at the close of the year operations were extended to 169 miles; the average amount of earthwork done during each month of the year was 2,34,509 cubic yards, and of masonry 4,440 cubic yards." The rules providing for the protection of the Ryots and for facilitating the transfer of land have worked

well, but the reluctance of contractors to come forward for the supply of sleepers is still a subject of anxiety. "There have been, however, 1,07,977 sleepers supplied during the year against 38,475 of the previous year, at an aggregate cost of Rs. 3,35,785, being at the rate of Rs. 3-1-9 the sleeper." The supply of stores from England has been very large, their value being estimated at 28½ lakhs of rupees, amongst them were "8 Locomotive Engines, 53,000 lengths of rail and 1½ lac of Chairs the two latter Articles weighing in the aggregate nearly 13,000 tons. The progress made in the first Division has not been so rapid as there was reason to expect it might have been. This is attributed, and with truth, to extensive works having been undertaken by Government in the District of North Arcot which naturally reduced the supply of labour. The Government learn with satisfaction, however, that in all ordinary cases Railway works in this part of India may be completed within two years from their actual commencement." The Consulting Engineer in a letter dated 19th June, 1856 observes that the proceedings "of the Government Railway Department have, with one exception been confined to the supervision of the proceedings of the Madras Railway Company." At the close of 1854, 13 Engineers were employed by the Railway Company and in 1856 their number was increased to 17. The sanctioned expenditure in the Engineer's Department, exclusive of establishments amounted to Rs. 10,43,312-6-6 whilst the pay of the Engineer's Establishment was Rs. 2,35,336-15-6. The cost of superintendence has been to the expenditure as 1 to 4. The cost at which the several descriptions of work have been executed during the year under review was satisfactory, but the progress of the work from Coimbatore to Beypore was not very great. The Railway authorities have during 1855 continued the practice adopted from the commencement of executing the works by their own servants, the native contractors being men with little capital and no enterprise. The District Engineers are of opinion that so long as they have recourse to day labour and arrange for the regular payment of wages the work will prosper and there will be no deficiency of labour. The Locomotive Department organized at the beginning of 1855 has progressed satisfactorily and there are now a "good set of native smiths" who work after the English manner with English tools. The work turned out by native artisans is exceedingly good. Better work could scarcely be done any where and though the workmen are slow yet they improve greatly as they become better acquainted with the nature of their work.

The receipts and expenditure of the Madras Railway in India are shewn by the accompanying table :—

Statement showing the Receipts and Expenditure in India from the commencement sanctioned up to the 31st December, 1855.

Madras Railway.		Total Expenditure up to 31st December, 1855.		Total Receipts.	
Agency and Management,	Salaries, ...	98,344	8	98,344	8
	Contingencies, ...	1,04,133	13	1,23,068	15
	Stores, ...	3,26,379	9	3,10,000	...
	Sleepers, ...	4,65,437	15	4,90,000	...
Locomotive, ...	Salaries, ...	29,394	15	29,394	15
	Contingencies, ...	1,128	3	.....	...
	Construction R. S.	20,280	8	45,000	...
	See Statements, ...	21,35,874	5	23,37,126	10
Total,		81,80,974	...	34,32,935	3
Balance, ...		2,51,961	2		9
Total,		84,32,935	3		0

On the 20th of December, 1854, Mr. Smalley delivered over the charge of his office as Agent to Major Jenkins and before doing so he submitted a statement of expenditure and work performed and stated that his object as Agent in India has been to furnish the Board with regular reports and that he has without one intermission transmitted an account of his proceedings twice every month. The Governor in Council in a minute dated 3rd January, 1855 records his approbation of the manner in which the duties of Agent have been performed by Mr. Smalley during 1853 and 1854. Correspondence which dates between December, 1854 and July, 1855 upon the current construction accounts follows Mr. Smalley's Report. The correspondence is of a most diffuse character, and perhaps the only point worthy of notice is that which refers to delay in the payment of salaries. Mr. Bruce, the Chief Engineer states that the salaries due for April, 1855 had not been paid on the 18th of June and that there was no detention of the accounts in his office. Mr. Bruce observes that he has paid the salaries of many of the workmen or they would have been in open rebellion and remarks that the withholding of the funds is an undue exercise of power and is calculated to injure the undertaking. The delay appears to have occurred in the office of Mr. T. Jenkins, the Agent who states that he has "no hopes of being able to transmit the wages statement for sanction with more expedition at any future period than at present." The Agent therefore recommends that there be an advance to him of 5,000 Rs. in addition to the 15,000 Rs. already advanced for contingent expenses. This advance is sanctioned by the Governor in Council but at the same time a hope is expressed that an improvement on the present system will take place as to render such an arrangement unnecessary. The correspondence upon the "advances construction accounts" dates from December, 1854 to December, 1855. On the 3rd January, 1855 the Government complained of the irregularity of "leaving to the last moment demands for funds which it is expected the Government are to place at the disposal of the Chief Railway Engineer at a few moment's notice, without having before them the necessary accounts as a guide for their proceedings." In a minute dated the 19th June, 1855 the Government determine that no advance "shall be sanctioned until the staking out of the line is completed, and surveys placed in the hands of the Collector, and that, as a general rule, for the future, no part of the line shall be commenced until the limits of the land required are marked on the ground, and the Collector has given his consent to the commencement of the work." The Government again animadvert upon the great delay in the transmission of the accounts and complain,

of the irregularity with which the works have been carried on, inasmuch as in many districts they have been commenced without the required preliminary surveys having been sent in and without any authority written or verbal. The correspondence upon the expenditure in District VI. from June, to August 1855 needs no remark. With regard to the large unadjusted cash balances which remain from time to time in the Engineer Department it is deemed advisable by the Consulting Engineer that duplicate accounts of the distribution of the monies be forwarded to the office of the Agent. Thus the knowledge of the distribution of the money will not be dependent upon the life of the Chief Engineer or upon the records in his office.

In the correspondence upon the accounts of the Locomotive Department nothing is worthy of notice either as regards the accounts or the advances.

On the 19th June, 1855, the Consulting Engineer requested the Agent to submit a report upon the relative cost of carriages made by contract in Calcutta and those made by Messrs. Simpson and Co. in Madras. In Calcutta the contractor makes the whole carriage except the iron work and fittings, whereas Messrs. Simpson and Co. make the bodies with fittings, but do not supply the under-frames. A report was accordingly forwarded and it was found that the cost of a first class Railway Carriage at Calcutta exclusive of springs, wheels and under-frame iron work was Rs. 3,170 whilst the cost at Madras for the same was Rs. 3,800.

The Agent agreeably to the command of the Board of Directors submits a report upon the audit of Railway accounts in India. He observes that the shareholders of the Madras Railway Company have appointed two auditors to examine and report upon the truthfulness of the account as submitted to the Directors for the sanction of the shareholders. "Copies of all accounts and vouchers, are sent from this Home, where they are again entered in the Home books of the Company. These accounts are all previously submitted to the Government, and are *sanctioned*. This fact does not appear to have been known to the Directors, as in consequence of the Auditors having reported their inability to give a complete audit of accounts in England of the monies spent in India, they suggested that a system of check, similar to that followed in Bengal, should be adopted in Madras and sent a copy of the rules of the Bengal Railway cash accounts. The accounts of the Company are, of course, to be kept in two separate sets of Books, the one being the "capital account" and the other the "revenue account." The "capital account" shows the amount received by the Agent, from the Government Treasury. These sums are distributed by the

Agents to the Heads of Departments, as authorized by the Government, whose receipts become the vouchers for issue in the Chief Accountant's Office. Those officials are required to submit appropriation statements, showing, under separate heads, how they have expended the sums placed at their disposal, together with vouchers in support of every issue to clear their accounts. The Chief Accountant is responsible that all Accounts are carefully checked, and examined; if found correct, they are forwarded for the sanction of the Government, on receipt of which, and not before, are the accounts entered in the Ledgers of the Company. In the department of the Chief Engineer, conducting the operations, as is done on the Madras Railway, without the intervention of Contractors, large sums have necessarily to be placed in his hands and those of his subordinates. But it is not desirable that this practice should be followed in any other Department of the Company. In the store department, the bills of vendors for stores, or materials, are first examined by the General Storekeeper and passed as correct, and brought to account; the bills are then checked in the Chief Accountant's Office, and if the charges are unexceptionable, a cheque for the amount is given by the Agent, in the Finance Department, for the amount of the Bill—monthly these sums are entered in a general statement, and submitted for sanction. All sums received by the Railway Company's Servants, on account of Traffic, must be sent intact, without any deduction whatever, to the Chief Accountant's Office daily, or oftener, in boxes constructed for the purpose; the money will be accompanied by a cash statement; these, on receipt, will be examined by the cashier, and placed to the credit of each Station Master. The total amount received on the day will be forwarded to the Bank, and monthly the total amount received, will be paid into the Government Treasury, without any deduction whatever. For payment of expenses for working the line, application will be made to the Government to place such a sum as may be necessary at the disposal of the Agent, or General Manager, who in the monthly statement will show his appropriation of the money." To the report are appended the "Railway cash account rules." The Consulting Engineer remarks upon the Agent's letter that the "duty of 'auditors' in England, spoken of by Major Jenkins, is not exactly that which we understand to be performed in an audit office under Government. An auditor in England is employed, for the occasion, to look through the books, to compare the entries with the vouchers, to examine the calculations, and compare the actual with the recorded cash balances. He does not trouble himself with the propriety of the several charges made. In India the duty of an audit office is to

examine minutely the detailed calculations, and the charges checking the latter to the fractional part of a rupee. Considering the nature of the operations of this Railway Company, it is manifest that their auditors must be in England; and it is equally clear that all they require, in confirmation of the accounts sent from this country, are vouchers furnished with the attestation of the Government Officer." The minute detailed examination of accounts common to Government Audit Offices is the peculiar province of railway establishments. The Government officer should merely exercise a general control over the expenditure and have regard to totals rather than particulars. If the Government "were to establish an office for the purpose of auditing, in the Indian sense, that is minutely checking all the calculations in the numerous accounts connected with the Railway transactions, they would be in fact doing a portion of the very work for which the Railway Company is formed, and for which they are furnished with expensive establishments." The observations of Colonel Pears were approved of by the Governor in Council and submitted to the Board of Directors. The report contains correspondence upon the estimates for Nos. 3 and 7 divisions, upon "staking out," progress Form E. fortnightly reports, progress of works in district 14 and proceeds.

The estimate for the bridge at Royapooram was 32,000 Rs. the bridge consists of 6 inches of 25 feet each and the total length measured between the faces of the abutments is 172 feet 6 inches. The estimate for the canal bridge was Rs. 8,000 and the amount sanctioned by Government was Rs. 11,137-1 whereas the amount actually expended was Rs. 22,209-0-11. Upon which the Chief Engineer remarks. "This bridge has cost a great deal more than it should have done, and more than it would have done, had we had an experienced man in charge of it." The cost incurred above the estimate was occasioned by the very treacherous and difficult character of the foundation, by the much larger than anticipated cost of granite and laterite and by the carelessness of the accounts taken of materials delivered. It is however satisfactory to know that the work has been well done and completed for one-third of the sum it would have cost in England. The total amount expended upon Cortillaur bridge was Rs. 74,257 whereas the sanctioned estimate was Rs. 55,518-14-2. The excess of the expenditure over the estimate was owing to the increase of the cubical content of the work from cubic yards 6881 to cubic yards 11,469 and to the despatch obliged to be used to complete it before the monsoon. The Chief Engineer observes that the bridge is the first work of the kind in that part of India and was both well and quickly done. Under these circumstances the Government

sanctioned the expenditure. The estimate for the bridge over the road between Arcot and Chittoor was Rs. 4,625. The sketch and estimate for the Cauvery bridge had not at the other time of the report been forwarded. Some rail girder bridges have been erected in the 1st Section, District 7, these were carefully tested and the result was as follows. " With the driving wheel of the Engine over the centre of the Girder, deflexion five-tenths of an inch, at a speed of 10 miles per hour five-tenths of an inch.

at a speed of 15 miles per hour ib. do.

at a speed of 20 miles per hour eleven-twentieths do.

at a speed of 30 miles per hour ib. do.

at a speed of 50 miles per hour ib. do.

Permanent deflexion none :—no appearance of movement in the wall plates, or masonry."

The correspondence relating to the sleepers contains nothing of interest with the exception that to preserve the timber from rotting and from the attacks of the white-ants corrosive sublimate, sulphate of copper, chloride of zinc and arsenite of potash have been proposed. Difficulty has been experienced not only in obtaining sleepers but in obtaining timber for rolling stock. The agent therefore in 1855 applied for permission to purchase 1,00,000 cubic feet of timber at a cost of 70,000 Rupees being the estimated amount required for the construction of rolling stock from May, 1855 to May, 1856. The Government authorised the advance of 70,000 Rs. for the purchase of the timber. " In a letter from the Board of Directors of this Company, dated the 29th March last, it is stated that it appeared to the Board to be most desirable, in order to prevent any error in the description of materials and machinery supplied for the Electric Telegraph Department, that, if possible, they should be obtained through the Government, as, in this way, uniformity of construction and working throughout the chain of Indian Telegraphs, to which importance is so deservedly attached, will be most effectually secured."

On which account the Agent applied for wire and instruments from the Electric Telegraph Department of the Government. Neither wire nor instrument could be supplied from the public stores to the Madras Railway Company.

On the 9th February, 1855, the Consulting Engineer was instructed to take measures for ascertaining whether certain levels taken by Lieutenant Tyrrell between Vaniembaddy and the Mooroor Pass and which had been questioned by Mr. Beattie one of the Engineers were correct. The Consulting Engineer came to the conclusion that " Mr. Tyrrell did his work generally well, though there may have been some errors in his levels, more than there should have been, his line

was well selected, and his work, where disputed by Mr. Latham, was correct, moreover he was not answerable for the errors in the plans noticed by Mr. Beattie."

The estimate for the buildings of the Madras Terminal station was Rs. 3,59,121-5-10. The estimate provides for six good sheds at a cost of Rs. 55,836, a passenger's shed the estimate of which was Rs. 99,907-10-2 and other buildings. The Consulting Engineer remarks that sufficient solidity should be given to the roof and that arrangements should be made for closing the ends of the station when necessary. These precautions should be taken on account of the great violence of the storms in India. Some idea of the force of the wind may be formed from the fact that in November, 1846, the anemometer of the Government Observatory in Madras broke after registering a pressure of 40 lbs. to the foot, while calculations made shew that the pressure of the wind must on that occasion have been 57 lbs. to the foot. Owing to some mistake in the construction of the station buildings the platform was constructed 3 feet 6 inches below the level of the carriage floor, on this account an additional outlay of Rs. 84,151 was rendered necessary and the platform shed was separated from the station buildings. The report contains a correspondence upon the estimates for small Stations which amounted in all to Rs. 39,831-4-0.

During the year there was some delay in the transmission of the "store and workshop" accounts. The total receipts up to 31st December, 1854 were Rs. 1,15,000 of which Rs. 67,000 were left in the shape of stores and raw material. The Government in remarking upon the unsatisfactory nature of the returns desire to impress upon the Agent that "it is his duty to see that complete and accurate returns of the Railway stores and the out-turn of the workshops are duly rendered in future, and to forward them without delay for submission to Government." The report contains the correspondence upon the buildings for the Locomotive department for which a shed was ordered to be erected at an estimated cost of Rs. 10,910. The rules for taking land required for the construction of the railway are:—"1st, That all land required for incidental purposes connected with the Railway be taken by the Railway Commissioner. 2nd, That such land, if within the prescribed limits, be taken under Act XLII. of 1850; if otherwise, by private bargain, when reasonable terms can be obtained. 3rd, That the contractors be at liberty, as heretofore, to take earth for bricks or ballast from the land given to the Railway Company for side cuttings, spoil banks, or other purposes, but that they be required to pay rent for all land that may be taken expressly for their own use. Subsequently, it was

ruled by the Government of India, as per Secretary Mr. C. Allen's letter, No. 1179, dated 3rd November, 1854. That when the works are being constructed by the officers of the Railway Company, the price of extra land required for brick making, or other incidental purposes, should be paid by the Railway Company, as it would have been paid by contractors, had the works been let to contract." Some dissatisfaction was felt by Government at land having been taken possession of, in the Salem District before it was regularly transferred.

The correspondence upon land compensation contains but few points worthy of notice. The land required for the way and works is conveyed by Government under the deed of contract but all other whether for brick yields, ballast pits or otherwise is paid for by the Railway Company. In the statement land for these two purposes is kept distinct. It has ever been the aim of Government that the owners of the land should receive compensation with all due despatch and it appears that with the single exception of the North Arcot District their wishes were tolerably well carried out. With regard to the site of a Terminus on the western coast Mr. Bruce preferred Beypoor to Cochin though the latter is a more populous place and has a better harbour. Beypoor was selected inasmuch as it is conveniently near to Calicut, the capital of Malabar, besides Beypoor is a place easy of access for ship's boats and the "anchorage without is excellent." The report contains the list of Stations sanctioned by Government between Madras and the Mooroor Pass, the rules for Engineers, framed with special reference to the precautions to be observed in interfering with property before all the arrangements have been made regarding compensation, and the correspondence commenting upon these rules.

With regard to the employment of native labour, the Consulting Engineer is of opinion that there is nothing that natives will not be found capable of performing when once instructed. "They are quick, and willing to learn ; but, in their present state, they require, unfortunately, not only first teaching, but subsequent close watching—one of their most prominent failings being a carelessness of the quality of their work, and a short-sighted disregard of their reputation. In regard, therefore, to the Engineer and Locomotive departments, I conceive that all ordinary manual labour may and ought to be supplied from among the natives ; that, for sometime to come, not only must Superintendents and Foremen be supplied from England, but there should be men specially appointed, in the workshops, to the immediate charge of one or more of the more valuable tools, according to their character, whether planning, drilling, shaping, sawing machines, or others. These cannot yet, be wholly trust-

ed in the hands of natives although they may be used by them under such supervision. In the meantime, the Agent has made an excellent beginning, in the formation of a pupil establishment, under the Locomotive Superintendent, where young men, natives of the country, having passed the required examination, will receive such practical instruction as shall fit them, in a few years, for those duties to which it appears at present necessary to appoint men from home." A regular scheme for the travelling allowances of the Railway officials has been drawn up and submitted for approval. During the year 1855 an application was made for soldiers as plate-layers, but the Government decided that the Railway Company should in every case make their own arrangements for the supply of labour and that it was opposed to the intention of the Hon'ble Court to place any of their servants at the disposal of the Railway Company. If Commanding Officers, however, choose to grant leave to their men they may be employed. With regard to the proposed junction of the Madras and Bombay Railways the Governor in Council on the 21st May, 1855 decided that it was premature to send any Engineer to arrange "where the proposed lines from the two Presidencies should meet, until it was decided by the Government of India whether the work of forming the Railway, over the 80 miles of Nizam's territory lying between the Kistnah and Toombuddra rivers should be confided" to the Bombay or Madras Railway Companies.

REPORT ON THE EXTERNAL COMMERCE OF THE MADRAS TERRITORIES.

For 1855-56.

On the 26th of July, 1856, Mr. W. E. Underwood submits a report for the official year 1855-56, to the Secretary of the Board of Revenue, Fort St. George upon the External Commerce of the Madras Presidency.

The accounts for 1855-56 were transmitted three months after the termination of the official year and would have been submitted earlier if the printed blank statements had been ready.

The monthly expense of the establishment allowed for compiling the Madras Returns is Rs. 619 which is Rs. 51-13-4 less than the expenditure for the same object in the Straits Settlements, whilst the task is more laborious.

The subjoined statement exhibits the transactions of the year 1855-56, as compared with the preceding year :—

	1854-55.	1855-56	Increase.	Decrease.
	Rupees.	Rupees.	Rupees.	Rupees.
Imports, { Merchandize, ...	1,91,24,962	2,31,33,876	40,08,914	"
{ Treasure, ...	64,81,955	1,37,16,696	72,34,741	"
Total, ...	2,56,06,917	3,68,50,572	1,12,43,655	"
Exports, { Merchandize, ...	2,39,43,083	2,91,70,905	52,22,822	"
{ Treasure, ...	82,06,956	44,18,750	"	37,88,206
Total, ..	3,21,55,039	3,35,89,655	52,22,822	37,88,206
Re-Exports,—Merchandize, ...	7,17,474	6,64,364	"	53,110
Grand Total, { Merchandize, ...	4,37,90,519	5,29,69,145	92,31,736	53,110
{ Treasure, ...	1,46,88,911	1,81,35,446	72,34,741	37,88,206
Total, ...	5,84,79,430	7,11,04,591	1,64,66,477	38,41,316
Net Increase, ..	"	"	1,26,25,161	"

The total value of the imports into the port of Ganjam for the year under review was Rs. 1,16,083 of which Rs. 60,000 was treasure. The duty levied was Rs. 113-2-8. The principal import was gunny bags. The exports amounted to Rs. 11,98,251, the duty levied was Rs. 4,493-9-8 and the chief articles of export were rice, gingelly seeds and sugar. The total number of square rigged ships which arrived at the port was 29 of which 5 were under British colours, 10 were French and 14 were native craft. Their combined tonnage was 8798 tons. The port of Vizagapatam received goods to the amount of Rs. 1,53,521 upon which a duty of Rs. 1053-10-10 was levied. The chief import was cotton goods. The value of the exports was Rs. 16,82,699 and the duty levied was Rs. 25,776-3-3. The chief exports were sugar, gingelly seeds and cotton goods. The value of the imports re-exported was Rs. 4,421. 45 square rigged vessels entered the port, 5 under British colours, 8 under French colours, one from Maldiva and the remainder native craft.

The value of the imports by sea into the port of Rajahmundry was Rs. 4,73,440 of which Rs. 2,80,973 was treasure. The amount of duty levied was Rs. 2727-15-8 and the principal articles imported were timber and cotton goods. The exports amounted to Rs. 16,96,521 of which Rs. 26,100 was treasure. The duty levied was Rs. 37,394-6-1 and the principal exports were sugar, gingelly seeds and cotton goods. The value of the imports re-exported was Rs. 19,060. The total number of vessels that entered the port was 140 affording a tonnage of 30,997 tons. 95 were native craft, 34 French and the rest American and British.

The value of the merchandise imported into Masulipatam by sea was Rs. 86,566 and the duty levied Rs. 55-11. The chief import was grain. The value of the exports was Rs. 1,03,306 upon which no duty was levied. The chief exports were seeds and lamp oil. 28 native craft arrived with a total capacity for 2,421 tons.

The sole imports by sea into Guntoor were paddy and rice upon which no duty was levied, the value of the grain was Rs. 8,529.

The merchandise imported into the port of Fort St. George was Rs. 1,52,67,882. The treasure imported was Rs. 88,81,911. The duty levied was Rs. 5,09,862-12-2. The chief imports are cotton goods, drugs and metals. The value of the exports by sea was Rs. 1,27,60,080 of which Rs. 36,07,991 was treasure. The duty levied amounted to Rs. 1,55,148-7-7 and the chief exports were grains, seeds, spices and oils. Rs. 1,89,720 was the value of the goods re-exported. The number of ships that arrived was 307 and their tonnage 1,55,191 tons.

The above is the number and tonnage of the ships from external ports; in addition there were 33½ ships from the Indian and Home ports with an aggregate tonnage of tons 97,863. Thus we have in all 64½ vessels of 2,53,054 tons arriving at the Port of Fort St. George in the course of the year under review. Of these there were 48 steamers of 89,190 tons and 203 square rigged ships of 1,05,715 tons under British colours. The rest exclusive of native craft were American, French, Sardinian and Swedish ships.

The port of South Arcot received merchandize to the value of Rs. 87,134 upon which a duty of Rs. 4,789-8 was levied. The chief imports were timber and fruits. The value of the exports was Rs. 7,42,949, which paid a duty of Rs. 18,459-7-11. The principal article of exports was indigo. The value of the goods re-exported was Rs. 5,706. The number of ships which arrived at the port during the year was 113 of which 9 of 1,693 tons were under British colours, 1 of 209 tons was under Dutch colours and 103 of 4,934 tons were native craft.

The import trade of Tanjore amounted to Rs. 9,82,059, and the gross amount of duty levied was Rs. 53,401-1-7. The chief import was fruit. The exports were valued at Rs. 32,21,495 and the duty paid was Rs. 1,45,924-5-5. The chief export was rice. The value of the re-exported imports was Rs. 30,288. The total number of the ships that visited the port was 368 of 31,189 tons, 285 of 26,596 tons were under British colours, 12 of 3,595 tons were under French colours and the remainder were native craft.

The value of the export trade of Madura was Rs. 3,97,067 and the duty paid was Rs. 11,589-7 of which Rs. 2-10 was the sum levied upon exports from home ports. The chief exports were bullocks and sheep. The import trade amounted to Rs. 1,38,011 and the duty paid was Rs. 9,409-3-9. The principal import was betel-nuts. The value of the imports re-exported was Rs. 8,552. The number of the ships which visited the port was 458 and their tonnage was 20,000; of these 359 were native craft of 12,416 tons and the rest were under British colours.

The imports of Tinnevely amounted to Rs. 2,74,335 and the duty was Rs. 6,628-0-6. The imports of greatest value were cotton goods and Poobathoo, a sort of dye. The exports amounted to Rs. 10,47,431 and the duty was Rs. 10,372-4-8. The chief exports were cotton wool and chillies. The value of the imports re-exported was Rs. 8,427. The total number of ships which visited the port were 296 of 17,262 tons of which 212 ships of tons 13,362 were under British colours.

The value of the imports into Malabar was Rs. 62,95,488, but of

this sum there was treasure to the amount of Rs. 23,39,724. The exports were valued at Rs. 50,70,938 of which Rs. 80,964 was the value of the treasure. The duty levied was Rs. 48,747-13-5. The chief exports were spices, coffee and grain. The principal imports were cotton goods, drugs, dyes, seeds, grain and metals. 1,757 vessels of 1,18,364 tons visited the port in the course of the year. 157 of 42,336 tons were under British colours and the rest were either native craft or Portuguese, Dutch, Arab, Danish or French ships. The value of the imports re-exported was Rs. 3,51,023.

The number of the ships which arrived at Canara was 1,718 and their tonnage was 63,535 tons. 1,708 of 60,372 tons were native craft and the rest were under British and French colours. The value of the imports was Rs. 40,86,113 of which Rs. 21,54,088 was treasure. The duty levied was Rs. 29,664-7-11. There were 52,36,431 lbs. of salt imported of which 23,78,321 lbs. were from Bombay. The principal import was cotton goods. The value of the exports was Rs. 56,68,918 of which Rs. 7,03,695 was treasure. The duty levied was Rs. 43,862-4-1 and the chief exports were grain and cotton wool.

On the whole the gross amount of duty levied upon the imports by sea into the Madras territory was Rs. 6,47,703-8-2 and that upon the exports was Rs. 5,42,268-5-8. The accompanying table shews the number of square rigged vessels which visited the ports of the Madras Presidency during the official year 1855-56:—
General Statement of Ships and Tonnage arrived at the Madras Presidency, from May, 1855 to April, 1856.

ARRIVALS.	Total Ships and Tonnage arrived.	
	Vessels.	Tonnage.
Steamers under British Colors, ...	48	89,190
Ships under British Colors, ...	1,086	2,12,463
American „	12	8,391
Arab „	8	3,141
Danish „	5	2,351
Dutch „	7	3,392
French „	102	36,428
Maldiva „	1	120
Sardinian „	1	748
Swedish „	1	417
Native Craft, ...	4,439	2,13,918
Total Square Rigged & Native Craft, ...	5,660	5,70,559

TENURE OF THE POSSESSIONS IN THE DECCAN HELD BY HIS HIGHNESS JYAJEE RAO SINDIA.

Bombay Records, No. XXXVIII.—New Series.

LIEUTENANT A. Etheridge on the 23rd of November, 1852 reports upon the claims of His Highness Sindia to estates of various descriptions South of the Ajunta Range.

His Highness Dowlut Rao Sindia in a treaty with the British Government on the 30th of December, 1803 ceded his possessions south of the Ajunta with the exception of some villages held in Inam by his family. These lands were then in possession of the British who agreed "that they should be restored, provided that no troops should ever be introduced into those lands and villages, under any pretence of collecting the revenues, or any other pretence whatever." In 1829 it appeared to the Government that His Highness was holding considerably more land than was reserved to him by the above treaty, they accordingly directed that Sindia should submit a list of his claims. Such a document was transmitted on the 20th February, 1820 by the Gwalior Durbar. About this time original papers were discovered in the Poona Duffur drawn up by one of the late Peshwa's Duffurdars, and containing a list of the villages south of the Ajunta held in Inam by His Highness. These documents coincided in a remarkable manner with that setting forth the claims of His Highness. Every head with the exception of the first corresponded exactly and all agreed with the reservations set forth in the treaty. This manifestly threw great doubt upon the authenticity of the claims under the heading in question and which involved no less than 108 villages, of which only one Jambgaum in Purgunna Parnair was mentioned in the treaty. But there was still greater evidence than the above as to the invalidity of the claims of the Gwalior Durbar. The new claims under the first heading really included all the reservations and would have restored to Sindia all the cessions set forth in the treaty and 14 villages north of the Ajunta in Khandeish which had never been questioned. Thus the claims of the Gwalior Durbar reducing all the clauses of the Treaty to a nullity could not be admitted. Eventually out of the 241 villages then held by Sindia south of the Ajunta only 151½ could be established by documentary evidence. The Government therefore ordered that the remainder should be resumed, as also certain Umuls which had come into Sindia's possession in 1798. From motives of delicacy Dowlut Rao Sindia was permitted to have a *life interest* in these unauthorised posses-

sions. He died in 1827. Chor Chittoes for the surrender of the villages were transmitted through the Resident, and the Collectors in the Deccan were directed to receive them in charge. On their resumption it was found that a very considerable number had been alienated by Sindia, both prior and subsequent to the treaty. It was therefore directed that all alienations made previous to the date of the treaty should be respected, as well as all those of a purely religious character of whatever date, but that all other alienations should be resumed.

Several restorations were accordingly made by the British Government. In 1839 the Durbar requested permission through the British Courts of Law to establish their claims, to all the villages as Inamdars and Jageerdars from the Peshwa and therefore from the British as conquerors of the Peshwa's possessions. "From this it was evident therefore that the act of liberality exercised by the British Government had been entirely misunderstood by the Durbar" and this misconception was shared in by the Resident who urged their suit.

The individual alienations had been restored by process of law and it was probably this which had led the Durbar to wish to prosecute its claims on similar grounds. The Bombay Government however decided that claims to Inams were excluded from the British Courts of Law, the Government reserving to itself the authority to decide upon claims of this nature. The supreme Government concurred in the views of the Bombay Government and directed that Sindia should desist from the further prosecutions of his claims to the restoration of the villages. The Supreme Government likewise decisively rejected the claims set up by the Durbar for the Umuls in Sewgaum, Deypoor and Umber, since by the treaty before alluded to Sindia had abandoned all his possessions in the Deccan.

The plea, that such Umuls should not be resumed inasmuch as up to 1842 the British Government and the Peshwa had tacitly acquiesced in Sindia's right, was held insufficient. The Durbar were therefore called upon to make a final surrender of the remainder of these possessions which were inadvertently omitted in the general resumptions of 1828. The report contains the correspondence upon the resumptions and upon the validity of certain exceptions as urged by the Durbar.

"It must be remembered that, on the final overthrow of Dowlut Rao Sindia, the British Government, with a view to bringing His Highness the sooner to terms, placed under nominal attachment his entire possessions, and it was only when 'assured that his compliance was the only means of averting the entire conquest of his territories, that he submitted to the terms of his conquerors. This timely submission, there-

fore, of Dowlut Rao Sindia, averted the total loss of his dominions; and although he was never virtually dispossessed, yet there was a nominal attachment placed upon his territories generally. On the framing of the Treaty at Surjé Anjungaum on 30th December, 1803, Sindia, after ceding his entire territories south of the Ajunta Range, and renouncing for ever all rights and interest therein, appears to have thrown himself upon the generosity of his conquerors in petitioning to be allowed to retain certain lands and villages, which '*having descended in the family from generation to generation*' had become old hereditary possessions. The British Government, therefore, in perfect reliance upon the good faith of this assertion, conceded certain lands and villages."

The present possessions of Sindia in the Deccan may be considered under five heads:—

1st. Those held authorisedly in 1803.

2nd. Those held but not authorisedly in 1803.

3rd. Those not held in 1803.

4th. Estates specifically reserved in the treaty, viz. those which had descended from generation to generation in Sindia's family as hereditary property.

5th. Those which were reserved in the treaty but which do not fulfil the conditions recited.

With regard to the first subdivision there can be no doubt of its authorised nature; but with reference to the second heading it may be argued, that as these lands were conceded in perfect reliance that they fulfilled certain stipulations which they did not do, they may be resumed; and yet on the other hand it may be urged, that as the error was not discovered at the time, to interfere with them now would be a breach of good faith.

Mr. W. Hart, the Inam Commissioner in transmitting to the Government of Bombay the report by Lieutenant Etheridge, considers that all the Inams and Huks held by Sindia from the Peshwa as a private individual should remain unaffected by the treaty in 1803. With regard to claims coming under the first subdivision, given above, Mr. Hart considers that authorised enjoyment up to the Peshwa's fall in 1817 is as important an element as authorised enjoyment up to A. D. 1803. Claims of an hereditary nature under the second and third subdivisions should be admitted when there is proof of grant but on no other. There can be no doubt as to the propriety of the claims of Sindia under the fourth subdivision but the question remains as to the tenure on which the estates held under that subdivision should be held. There is considerable doubt as to the proper course to follow with respect to estates held under the fifth subdivision, and Mr. Hart applies for the decision of the Government on this head. On the whole Mr.

Hart is of opinion that the entire concession of all that can under any point of view be said to be reserved by Article VIII. of the treaty will not occasion to the British Government any unreasonable loss. When the Talookas and villages were restored to Dowlut Rao it was not said that they should be held on a more permanent tenure than that on which they were previously held. Therefore *according to the Treaty*, those that were hereditary would remain so, whilst those which had not been held on hereditary tenure would of course not become anything more than they had been. "Thus, without any straining of the meaning of the clause of reservation, all that was of a really hereditary nature would be continued for ever, and what was not would lapse at Dowlut Rao's death, unless continuable under the Surinjam rules with which the Treaty has no connection." The reports of Mr. Hart and of Lieutenant Etheridge were transmitted to the Supreme Government and the views of Mr. Hart were generally approved of by the Bombay Government.

Before pronouncing a final opinion the Governor General in Council thought it necessary to refer the points on which a decision was called for, to the Agent of the Governor General for the affairs of Sindia's dominions.

Accordingly on the 12th of May, 1853 Mr. Bushby reports upon the rights of Sindia in the Deccan. Mr. Bushby observes that the possessions and rights of the Sindia family are of two descriptions, one based on the treaty of 1803 and the other on his claims as an hereditary Wutundar of the Peshwa. The treaty simply guaranteed the restitution of the properties enumerated, without prejudice to the possessions rightfully or wrongfully held by Sindia at the time and it "would therefore be a breach of faith if the British Government allowed the question of resumption to be even mooted." With regard to Sindia's claims as a private Wutundar, the Bombay Government are perfectly at liberty to dispose of them as they would those of any other Wutundar. Under all circumstances Mr. Bushby is "inclined respectfully to deprecate all further agitation of the subject, and to abstain from any resumptions from Sindia of the possessions which he still retains in the Deccan." He is further of opinion that it is too late to bring forward Mr. Commissioner Hart's new argument.

Mr. Manson on the 29th of August, 1854 submits a report from Captain Cowper, the Assistant Commissioner, and expresses his opinion that "the provisions of the treaty should be enforced to the very letter."

Captain Cowper, after giving a statement of the case which agrees in the main with that by Lieutenant Etheridge summarised above, observes that no argument can be founded on

the non-mention of the reserved rights of Sindia in the partition treaties ; for General Wellesley distinctly guaranteed that the reserved rights were to remain to Sindia under the Company's protection. Such being the case it is clear that no sovereignty of either the Nizam or the Peshwa could have been recognised with regard to any of the holdings of Sindia not expressly mentioned as under the " Company's protection." Moreover Mr. Bushby's proposition admits of the deduction that the treaty left Sindia all that he had ever held in the Deccan. Whereas this treaty was intended to restore nothing but the Inam property. The fact that the lands to be restored were those that " Sindia's family have long held in Inam" is fatal to any claim put forward as to any Surinjam holding. Captain Cowper is of opinion that the rights reserved to Sindia by the treaty " can alone be disposed of by negotiation" but that all holdings not included in the reservations can be resumed.

The shares which the " British Government, as the Peshwa's successor, holds in villages reserved to Sindia by the Treaty of Surjé Anjungaum, have from the first (1817) been productive of little save inconvenience, discussion, and loss. It has been found impossible to obtain from Sindia's managers anything like the sums properly payable, without exercising a degree of interference and scrutiny which it has always been the object to avoid, and to which objection has always been raised on Sindia's part." Captain Cowper therefore considers that an exchange of these shares for a certain number of entire villages is the only feasible method of settlement.

In a letter dated the 15th of November, 1855, to the Supreme Government, the Governor of Bombay is of opinion that Captain Cowper has fully answered Mr. Bushby's arguments and suggests that if Sindia " would cede the whole of his territory south of the Vindhya Range for an equivalent in Hindoostan, the British Government would do well to make the transfer. They would get Boorhanpoor on the Taptee ; many of the places where iron is found on the banks of the Nerbudda are also included in Sindia's territories south of the Vindhya Range, and these places will incontestably acquire additional value when the railway is extended to Jubbulpoor."

The Supreme Government in acknowledging the receipt of the letter from the Governor of Bombay ask, whether the Government of Bombay consider that the lands, nominally stated to be held in Inam but really held in Jagheer, should be retained by Sindia as coming within the guarantee of the treaty. They reply that everything restored by Article VIII. of the treaty was restored solely because General Wellesley was informed that " these lands were not Jagheer but were Inam." On

the 27th of August, 1856, the Secretary to the Government of India was directed to state for the information of the Government in Bombay, that His Lordship in Council was of opinion that there was but one binding instrument in the matter in question namely, the signed Persian Treaty of 1803. It does not specify Inam as a necessary condition of the lands to be ceded to Sindia. That such tenure was intended by the British negotiators to be a condition and that it was accepted as such by the Maharaja's Vakeels there can be no doubt; but as he who could and ought to have explained himself clearly and fully in the Treaty failed to do so, it is to his own loss and detriment. "For these reasons His Lordship in Council cannot recommend the resumption of the lands in question at the present time, however little moral doubt there may be as to our right to do so. The Governor General in Council concurs with the Government of Bombay in thinking, that it will be an advantageous arrangement for this Government to exchange the shares which it possesses in some villages reserved to Sindia by the Treaty for entire villages equivalent in value to the valuation of those shares as assigned in the Peshwas' records. The Agent to the Governor General for Central India, will accordingly be instructed to negotiate with the Gwalior Durbar, with the view of obtaining the consent of His Highness the Maharaja Sindia to this arrangement." Mr. Edmonstone was further desired to say that the Governor General in Council would give instruction to His Lordship's Agent in Central India to negotiate with the Gwalior Durbar with a view of exchanging the shares which the Government possess in some villages, reserved to Sindia by the treaty, for entire villages. His Lordship in Council also approves of the proposal of the Bombay Government that the "territory of Jhansie be made over to Sindia in exchange for the country south of the Vindhya Range, on the Taptee and Nerbudda, and in the neighbourhood of the railway to Jubbulpoor." It is further directed that "the possession by Sindia of the small Inam land alleged to have been granted by the Peshwa in the capacity of Petal should not be disturbed."

THE NAHRWAN CANAL.

Bombay Records, No. XLIII.—New Series.

DURING the greater portion of the year that portion of "Arabia-Irak lying to the east of the Tigris, except on the few beaten tracts of commerce, is almost as difficult of access as the most impenetrable regions of the globe." The region of

the Nahrwan Canal comprises a tract of some 400 miles in length with an average breadth of 50 miles and is bounded on the east by hilly ranges declining with an easy and very gradual descent to the Tigris. "Of the rise and progress of the canal, history affords us but scanty information. Its origin is ascribed to the wisdom of the renowned Shapur Zalaktaf, and its repairs, improvements, and extension to Khusru Anushirwan, perhaps the greatest monarch that ever presided over the destinies of the Persian empire." At the commencement of the reign of Khusru Parviz, parks and pleasure grounds, palaces and hunting seats adorned the banks of the canal; but on his defeat by Heraclius, the country was overrun by barbarians who gratified their love of destruction by demolishing works of luxury and utility, palaces and canals alike. Persia never recovered the blow inflicted by Heraclius and indeed no breathing time was allowed, for under the converting sword of Syed Ibn Wakas, the General of the Khalif Omer, Mahomedanism succeeded to the tenets of Zoroaster. The rise of the house of Abbas after the murder of Ali and his ill-fated sons gave a lengthened peace to Irak Arabi and the Nahrwan was so repaired that Harun El Rashid derived no inconsiderable portion of his revenues from this source. The Nahrwan must have been devised as well for defensive as agricultural purposes "and, deep and rapid as it was, it doubtless served as an efficient outwork to the great capital of Madain, and subsequently to the cities of Baghdad and Samarra." The middle of the 9th century of the Christian era witnessed the decline of the power of the Khalifs of Baghdad and from that time to 1821 A. D. the city was alternately devastated by Tartars, Persians and Turks. Under these circumstances the decay of the canals is not a subject for surprise. Even now, every fresh year witnesses a further decay of the fine province formerly watered by the Nahrwan and the few merchants who are left in the towns of Irak-Arabi are flying to more prosperous and less exacting regions. In the letters of the Emperor Heraclius to the Roman Senate and in the records of Simeon the Logothete the orthography of the name is in the Greek form of Narban but by Theophranes and Cedrenus it is either Narba or Arba.

The report contains a short description of the ancient course of the Nahrwan, now comparatively useless as none of the names of the places through which it passed can be identified, with the solitary exceptions of Bakuba and Aberta. In April, 1848 Commander Felix Jones undertook a journey to determine the track of the ancient canal. The party consisted in all of eight persons of whom seven were native servants. The village of Kut was the point from which they started and the first part of the journey was due north towards the village of Kut el Amareh where

four canals, whose remains can still be distinctly traced, formerly met. The spot at which the canals crossed is marked by a high mound doubtless covering the remains of an edifice which stood at the confluence of the streams. Leaving the mound, the course pursued was nearly due west and towards the east bank of the Tigris, distant only some three miles. The Canal was plainly traceable as far as the ruins of Jumbil, once a place of considerable importance where all trace were lost. About a mile to the west the canals were again met with and the country was covered with a rich carpet of grass. This verdure was however but partial; for, as is generally the case, in ancient sites, there was much nitre in the soil. From Jumbil the exploring party returned to Kut el Amareh to examine the northern branch of the canal towards the Nishan el Kut. This branch appears anciently to have received the waters of a Canal called Ghathir el Reshadch flowing apparently from the north west. At 12 miles to the north of Nishan el Kut, a swamp commenced, which obstructed the direct progress of the exploring party, who were reduced to considerable straits owing to the want of fresh water. At length the bed of the Mari Canal was reached, but the former site was only marked by a line of oases. The return journey, though by a different route, was equally harassing and a halt was made on the bed of an ancient canal now called the Mokta el Subba. The conclusion arrived at from the journey was, that unless the Ghathir el Rishadeh and the Mokta el Subba were the remains of the ancient Nahrwan no traces of it were to be found between the village of Jessan and the Tigris south of Jarjaraiyeh. To the N. W. of Mokta el Subba well defined traces of the Canal were again met with. The remains bear the name of Shaour they extend however, but for a short distance beyond Jarjaraiyeh, whose ruins now exhibit only insignificant mounds. At Abu Halifiyeh the traces were recovered and the bed of the canal, there 70 yards broad and with banks of 50 feet in height, was the road pursued by the expedition. At Imam Imlikh the banks became still more elevated and the Nahrwan making a bend to the west pursued a curved course to Qabr Harbi. Here, as the space between the ancient canal and the Tigris was increasing every mile and no water was procurable, Commander Jones was obliged to retrace his steps to the Tigris. After passing the winter at Baghdad, Commander Jones again set out with the intention of finishing the work he had begun. The first point of interest encountered in this second journey was the ruins of Mismal, a Parthian or Sassanian edifice. Its shape is that of "an irregular parallelogram, having had three gates facing the west, east and south

points." The walls are massive and thick and at the present time are about 35 feet above the plain. And the four sides are respectively 280, 200, 150 and 95 yards in length. After leaving Mismai the travellers travelled nearly due south and crossed the canal for Sitweh which, is the name given to the ruins of an extensive town on either bank of the Nahrwan. At Sifweh the canal continues to the south for one mile and there meeting with the alluvial tract is conducted along it to the south-east. The remains of the first of the lateral branches that emanated from this magnificent Canal are distant about $2\frac{1}{2}$ miles from Sifweh. They are on the right bank and are now called the Kushmeel Khor. At Joziyeh the Khorassan canal formerly joined the Nahrwan. From that place to Chef, where the next branch was thrown off, the canal "was straight as an arrow" in a line of 128° . Leaving Chef the canal pursues a south easterly direction and is joined by the Tamerrah canal beyond which it is nearly 100 yards broad.

At Sisobaneh occurs the first branch from the left bank of the canal. Here the Nahrwan makes a curve to the south and its course resembles in its sinuosities the natural bed of a river; from thence to Aberta the canal pursues a more southerly course. In Arabic Aberta signifies the place of crossing and its site was probably selected as being upon the high road from the North East provinces of Persia to the capital of Ctesiphon from which city it was distant 17 miles. It is at present remarkable as being the only spot where a ruin has an erect position. The fragment is probably a portion of a massive wall, but the Arabs call it Minareh.

At Aberta the canal takes a bend in the opposite direction to that at Sisobaneh and an abundance of water from the collected rains occupies the bed of the ancient stream. This and the rich grass meadows that border on the canal have invited a large party of Niyadat Arabs to the spot. A little below Aberta are the remains of a fort, which originally appears to have been quadrangular with sides of 500 yards in length. The ruin at present is known by the name of Tel Tubbel or the mound of the drum. About three miles below Tel Tubbel there are the remains of three canals, two from the right bank and one from the left bank of the old stream. They all bear the name of Zahreh. Still lower down there are some considerable ruins for which the Arabs have no name and the remains of the piers of a bridge, from whence the Nahrwan pursues a south by east course to Kana-tir. The numerous canals thrown out at this place point out the district to have been anciently both thriving and densely populated, and a noble structure in the middle of the bed of the Nahrwan shews that the people had obtained considera-

ble skill in hydraulics. On either bank solid walls of well constructed brick, gradually approaching each other, were connected by a dam, on each side of which sluices 20 feet wide controlled the supply of water. The length of the walls was apparently about 870 feet and they were supported by buttresses. The dam and that part of the side walls exposed to the action of the water were ingeniously contrived to prevent the abrading effects of the confined torrent; for, when the fall of the waters infringed on the material the bricks were placed edgeways and over the whole there was a durable concrete composed of fine lime and large pebbles. The bricks used were exactly one foot square, kiln burnt, and so hard that it is even now difficult to break or detach them. The plains lying immediately below Kanatir having an increased dip it was necessary to build the works above mentioned so that the fertilising stream might not be converted into a destructive torrent. Five miles below Kanatir are ruins called Sumakeh, so thickly heaped together that the mounds of the ruined edifices are at least 50 feet in height. Commander Jones considers this place to have been originally the most populous on the whole line of the canal. From Sumakeh, southwards, the banks of the Nahrwan are much broken and somewhat lower than the country on the left bank; the course tends more to the south and from Meyahh to Qabr Harbi, the point to which the party attained in their previous expedition, it is nearly a straight line. Thus Commander Jones beginning at Kut traced the Nahrwan Canal as far as Qabr Harbi and then owing to the scarcity of water was obliged to make the best of his way to Baghdad, from which place on the following year he set out and traced the canal up to the point at which his investigations had previously ended. Here the expedition terminated and in the following year he left Baghdad to trace the main conduit north of Diyaleh which was anciently called Katul el Kesrawi.

The Katul el Kesrawi pursues from Baghdad a winding course bending on the whole N.N.W. It formerly had several branches the principal one called the Batt having a direction nearly due north and parallel to the Atheim, the Phyeus of Xenophon. The re-opening of the Nahrwan is under consideration and it would be feasible enough to a Government less embarrassed that the Turkish, but with an empty treasury, an impoverished population, a dissatisfied soldiery and rebellious Turks, the measure can scarcely be put into operation. The condition of the province might however be ameliorated by the "introduction of small irrigating steam-engines every one of which would display its advantages to the natives of the country by its real and not apparent utility." The breed of cattle might

be improved and, in addition to grain of every variety, indigo, sugar, hemp and opium are capable of being cultivated.

THE TIGRIS ABOVE BAGHDAD.

Bombay Records, No. XLIII.—New Series.

COMMANDER James Feli: Jones, I. N. submitted to Government on the 5th of November, 1846 a narrative of a steam trip to the North of Baghdad.

The steamer left Baghdad on the 2nd of April, 1846 with one month's provision and 21 tons of coal and firewood. The banks of the Tigris presented a beautiful appearance, the river was rising and the weather cool and pleasant. "The gardens to the north of Baghdad terminate abruptly about two miles above Kathemein on the right bank, but on the left, after leaving Moudhem, scattered villages and date-groves are seen as high as Tel Goosh, from whence to Jedidah the country, at present, is highly cultivated with wheat and barley." On both banks there are round towers and enclosures, the former affording shelter to the cultivators from marauding parties and the latter giving shelter for the cattle used in irrigation. The old adage of the sword in one hand and the plough in the other is here literally verified. "On the right bank and west of Munsuriyeh, the Tarmiyeh ancient canal leaves the Tigris; and another large canal, bearing the same name and said to be of more ancient date, is seen about one mile and a half below. This has now been long dry, but the northern canal, during the high state of the river, still receives a portion of the Tigris, and is lost in the marshes west of Kathemein. Its direction by compass was observed to be 244°." The whole of the gardens from Jedidah to Sindiyah are watered by the Khalis canal which runs nearly parallel to the river Diyala. This canal and the Dijeil are the only two of any consideration that the Pachalic can boast of. Beyond Sindiyah the river runs in a more westerly direction and the Nahrwan is known by the name of El Dojm. After passing the Atheim the bottom of the river changed to a hard shingle over when the current ran at the rate of 6½ miles an hour. There were numerous rapids which the steamer could hardly surmount. Her engines appeared partially paralyzed when on the summit of a rapid, and the revolutions decreased from 29 to 23. At the city of Qadesiyeh there are the remains of an octagonal fortress with round towers at each angle between which 16 bastions are placed, 37 paces distant from each other. It is built of sun-dried bricks 18 inches square and 5 thick. There can be no doubt but that the city of Qadesiyeh

"was one of importance during the flourishing period of the Nahrwan, and probably owes its subsequent abandonment to that vast canal being allowed to fall into decay." Due west of Qadesiych there are the remains of a small town called Istabalat near which the Dijeil canal leaves the Tigris. This canal "pursues a SE. direction, and, passing the end of the Median Wall, the villages of Harbah and Sumeichah, is finally lost near the Tarmiyeh water." The Nahrwan has long since fallen to decay. "It can still be traced for three hundred miles, and the ruins of former cities, met with on its margin, attest the flourishing state of Irak during its existence. Vast swamps and extensive lakes, in all probability originally caused by its own decline, surround it in every direction, converting this once luxuriant and highly cultivated province into hot beds of malaria and fever. Its dry bed is now used as a high road by travellers and caravans, on account of the protection afforded in the recesses of its mutilated banks from any of the numerous parties who may be out in search of plunder."

The modern town of Samarra, which comprises about 250 houses with a Sunni population of about 1,000, is situated in the cliffs forming the left bank of the Tigris, and is encircled by a strong wall built at the expense of the Shiah population of India. It is however a miserable town and owes its celebrity to the tombs of Imam Hussain Askari, and Imam Mehdi, who was the last of the Imams revered by the Shiah. He is said to have disappeared from the earth at this spot, and above 10,000 pilgrims resort annually to his shrine. The town is farmed out by Government at £660 per annum. The report contains two lithographed drawings. To the north of the town there is a spiral tower, about 163 feet in height, called Malwiye.

To the N. N. W. of Malwiye are the remains of the Khalifa or palace of Motassem. The ruins have vaulted chambers beneath them in which the natives firmly believe a lion holds his court. Many traditions are attached to these subterranean apartments and Beckford's Vathek owes its origin to this locality. W. by N. of Khalifa there are two groups of ruins which at a distance resemble pillars. One group is called "Ashik" and the other "Mashuk." About 4 miles north of Samarra there is a tumulus called Tel Alij or the "nose bag mound." It in all probability marks the site of the "Ustrina" or pyre upon which the body of the Emperor Julian was burnt previous to the removal of his ashes to Tarsus.

From Samarra the expedition after passing the ancient "bund" across the Nahrwan arrived at Dur. The village is a collection of miserable houses and is historically interesting,

inasmuch as at this place on the fourth night after the death of Julian the army under Jovian attempted to cross the Tigris. Lime is found at Dur in great quantities and Baghdad is chiefly supplied from this place. The lime is transported on rafts which differ in no respect from those in use in the days of Herodotus. They are composed of the branches of trees supported on the inflated skins of sheep and are capable of carrying from 30 to 40 tons. Travelling by raft, as a matter of convenience, is far preferable to the land journey from Moosul to Baghdad. But it is attended with danger, for the Arabs occasionally plunder any rafts or passengers which may happen to come within their reach.

At Tekrit there are the remains of a very strong fortress built upon a cliff 130 yards long 70 feet broad and 86 feet in height from the water's edge, but the debris of former buildings have increased the height to 100 feet. "The modern town has two mosques, but no minarets. The streets are kept free from filth, and altogether bear an aspect of cleanliness and order seldom seen in eastern towns. Four hundred matchlocks and guns, which is rather under than above the true amount, can be collected for the defence of the place." The margin of the river from Tekrit to "Khan Kharneineh is now entirely peopled by the Shammar, and all communication between Tekrit and Moosul is in consequence stopped. They have vast herds of camels and sheep, which are seen grazing with their beautiful horses on this rich plain, dotted here and there with black tents affording a pleasing picture of pastoral life, did not the character of the tribe contrast sadly with its primitive habits." After leaving Khan Kharneineh the country on the banks of the Tigris is exceedingly fertile and teems with wild plants of every description. The expedition advanced nearly as far as El Fet'hha, or the opening, where the Tigris breaks through the hills, and then was compelled to return to Baghdad.

A JOURNEY THROUGH KURDISTAN TO THE FRONTIER OF TURKEY AND PERSIA.

Bombay Records, No. XLIII.—New Series.

THE disputes between Persia and Turkey in 1843, threatened to involve those Empires in a war that would ill accord with the interests of European States. The friendly mediation of Russia and England was however accepted and the contending parties

prepared to submit their long-pending disputes to arbitration. So vague was the evidence before the Commission which was appointed to investigate the disputes, that it was deemed advisable to procure oral testimony from the Chiefs of some of the tribes located on the debateable grounds. Accordingly in 1844, Commander Felix Jones was commanded to bring a deposed Sheikh of the Cha'ab Arabs from Basra to Baghdad; and Major Rawlinson, then Resident at Baghdad, determined to accompany him.

The expedition left Baghdad on the 19th of August, 1844, and consisted of Major Rawlinson, a British merchant, Commander Felix Jones and a retinue of some 20 servants and a body of mounted troopers. The first halt was at Khani-beni-sa'ad, where the few wells in its vicinity afford only brackish water. It is therefore necessary that the traveller stopping at this station should supply himself with water from Baghdad. The Diyaleh was crossed at Haweidha and the route led through Bakuba across the Mahrut canal up to Shehraban, which village is supposed to occupy the site of the ancient Apollonia. After crossing the Belad Ruz and before entering the defiles of Hamrin it became necessary to collect the party to provide against a surprise from robbers. When they had passed this range, they reached a village called Kiz'l Robat and were received by the Chief, Kader Pacha, with hospitality. After passing the night with him the expedition journeyed on to Khanakin which town boasts of a splendid bridge of nine arches over the Holwan. Opposite to Khanakin and on the Persian side of the stream there is the town of Haji Kara which possesses a fine Khan. These places are now the frontier towns lying on the main road between Turkey and Persia. Both Khanakin and Haji Kara form considerable entrepôts for trade, and many of the influential houses at Baghdad and Kirmanshah have agents there; gums, galls and other drugs abound in the vicinity and might be made a source of considerable profit. From Kasri Shirin the travellers were escorted by a party of Jut horseman, who formed a striking contrast to the Arabs. They had fine manly features and dressed with a greater regard for show than the Arabs, but at the same time they were neither so courageous nor so enduring. Near the Khans of Sar Puli Zohab are the remains of the Halah of the Israelitish captivity; one of the eight primeval cities of the world. Parts of the ancient buildings are still seen in section, and bricks bearing cuneiform inscriptions similar to those at Babylon abound in the vicinity. After crossing the Holwan, the plain of Bishiweh, is entered upon. This plain lies between the Dukkani Daud, through a gorge of which the Holwan flows, and the mountains of Zagros. It is plentifully watered and well cultivated, and terminates at the foot of the Taki Girrah

the ascent of which proved rather laborious to the expedition. Half way up stands an arch of white marble which is doubtless of great antiquity, but now bears neither inscription or design. The caravan, after travelling through roads sometimes so narrow that they were compelled to travel in single file, arrived at the Fort of Sarmil, the ancient boundary of the Turkish and Persian empires. Kirrind, a neighbouring village, situated in a deep gorge of the Zarr range, has a particularly pretty appearance; rich gardens, which produce a variety of fruits, including the celebrated stoneless grape, extend up the defile and along the base of the mountain. Galwarah, where the party made a halt, is the capital of the Guran country. It contains about 300 houses which are flat roofed and rise in terraces on the slope of the mountain. "Ten years ago, when the Persian forces were commanded by British officers, Major Rawlinson was appointed to raise a regiment of Gurans for the service of the State. This he accomplished, after some trouble, and resided in this locality until he had brought his new corps into a state of perfection almost unknown in these regions. He afterwards led this regiment through the intricate passes of Luristan and Susiana, and to this journey, and to his residence among the Gurans, we are indebted for his admirable paper on the comparative geography and historical notices of some of the most interesting countries alluded to by ancient writers; and which had seldom, if ever, before been trodden by the foot of an European. A great change has, however, happened since the British officers were withdrawn, and the corps, that before consisted of near 800 rank and file, now scarcely musters 350 bayonets. Oppression, wages in arrear, irregular service, and a thorough absence of system, are the chief causes of this decline. The same causes have operated, in a more or less degree, on the whole Persian army, under the imbecile government of the Shah and the tyrannical conduct of provincial governors. At the present time Mohab Ali Khan, the Amir of this province, is compelled to confine himself to the city of Kirmanshah, the large tribe of the Calhurs having risen, not to seek redress for imaginary grievances, but to obtain the justice which has hitherto been denied them. The extent to which taxation had of late been raised rendered it utterly impossible for the poor cultivators to comply with the increased demands; and then the rapacious agents of so worthy a master, equally alive to their own interests, resorted to a system which in a very short time left the brave but oppressed ryot nothing but his sword to subsist by." The Guran Kurds are a frank and hospitable race and like most mountaineers are hardy and enduring. Very little is known of their faith,

which appears to embody the various doctrines of Judaism, of Christ and of the Shiah Mahomedans. They are termed Ali Ilahis and are supposed by Major Rawlinson to be of Jewish origin. It is said that their religion enjoins that at certain periods they shall congregate by night on a particular spot. On these occasions the greatest license prevails and seems to be prescribed by their creed. Both the Ali Ilahi of the Zagros and the Ancyrians in Syria may be remnants of the early Babylonians, who in their religious festivals indulged in every species of licentiousness. From Gahwarah the course led long the left bank of the Zemkan and after attaining the head of the pass of the Kal'eh Kazi range, across the fertile plain of Mahidasht in the direction of Kirmanshah which a few years ago had the reputation of being a thriving city. But owing to the rapacity of its successive Governors, to the plague and to cholera the number of its inhabitants has been reduced from 35 thousand to 24,600. Internally the town is a mere heap of ruins, its bazars are but partially filled and there is scarcely any trade but in fruits. - Anciently Kirmanshah was celebrated for the beauty and richness of its carpets but now scarcely one can be obtained. Tabriz is the chief place from whence its imports are derived and articles of European manufacture find a tolerable sale. The inhabitants have a peculiar custom of inscribing upon the tombstone, the sex and professions of the defunct by various devices. The grave of a female is shewn by a double comb and that of a male by a single one. Some few of the tombs are also decorated with the braided tresses of some female relation or friend. During his stay at Kirmanshah, Major Rawlinson paid a visit to the rock of Behistan upon which are numerous inscriptions. - At a height of 300 feet above the debris at its foot, the face of the rock has been chiselled so as to expose a smooth surface. The surface may be divided into four tablets. The main one, devoted to the sculptures illustrative of the writing beneath them, is the largest and is 30 feet in length and 26 in height, of this the sculptured slab with a pedestal of 11 inches occupies fourteen feet ; the remaining portion being dedicated to the reception of an inscription written on four columns in the Persepolitan cuneiform character. Each of these columns containing 96 lines is six feet four inches in breadth ; and a supplementary half column, now much defaced, appears to have been added. Immediately to the left of these, as they are viewed, a projecting slab twenty-one feet in length exhibits in three columns a transcript in the Median language. Immediately above the Median tablet, with its base resting upon it, is a rock inclining inwards. This has been scarped upon its face and sides and bears an inscription in the Babylonian cuneiform. To the

right of the main tablet the rock has been smoothed for a further space of six feet and is covered with characters but so much destroyed that it is difficult to distinguish, their nature. This is probably the work of a subsequent age, inasmuch as unlike the former tablets it does not exhibit careful preparation and has not undergone the process of varnishing. The varnish is composed of a hard flinty and very durable substance, and were not destroyed by the constant trituration of rain water is as perfect and smooth as the day it was laid on. The letters, which are one and a quarter inch in length, exhibit considerable skill on the part of the engraver.

The sculptures comprise a group of fourteen figures and if the three principal figures are excepted, they are deficient in beauty. Some of the figures are standing and are attached to each other with a long cord passing round their necks and their hands are bound behind them. Probably the badness of the design and the dwarf like forms of this portion of the sculptures are intentional and are meant to point out the more exalted position, and therefore greater virtues, of their conqueror ; who is of commanding stature and is represented in the attitude of a victor with his left foot on the body of a prostrate foe, the tenth of the captive group. This figure is meant to depict Darius. " His features are well developed, and exhibit that energy and determination of character for which he was celebrated. A degree of finish and study pervade the figure of the monarch, who is singularly enough represented with bare feet, while his captives and followers are either sandal-clad or wear a coarse species of shoes. His head, surmounted by the diadem, displays, after the fashion of the day, a carefully-curved mop of bushy hair, extending nearly to the shoulders. The upper lip, too, is adorned with an elegant moustache, and the beard, fantastically disposed in stiff and separately curved tresses, adds much to the dignity of his appearance. The left hand grasps the bow, the symbol of regal power ; while the right is elevated and extended towards the prisoners, in the attitude of angry expostulation. The wrists are adorned with bracelets, and a girdle or zone, terminating in two tassels, encircles the waist of the monarch, and serves to bind the flowing tunic that he is habited in. A loose vest or jacket, with large open sleeves, completes his attire. The attendant guards in their dress differ but little from the monarch. They have sandals on their feet, and the head is only covered with a circular cap. The one nearest to majesty also bears the regal bow, and a well-stocked quiver hangs pendent at his back. The furthest removed from the king differs from the last only in being armed with a spear, which is held upright by both hands in front, the shaft resting on the ground.

"The aerial figure which hovers over the centre of the group

would seem to represent the Supreme Being ; and this idea is in a measure confirmed by its also presiding over the sculptured monuments of antiquity met with at Persepolis. Some writers have imagined that the figure merely denoted the spirit of a departed monarch, and was symbolical of the immaterial substance of man. Others have denominated it the 'Ferooher' of the Zend-Avesta ; the soul or spirit that presided over all the royal acts—a constant guardian over the regal head ; an emblem of the favouritism of Ormazd—a type of the anointed of the Lord.

"It is a half-length figure, clothed with the short vest similar to that of the king, from which depends a long flowing and plaited robe, spread out fan-wise at its skirts ; a zone or girdle, terminating in snake-like ends on either side, confines this at the waist. It is probably the sacred fillet still worn by all ranks of existing Guebres, in Persia, and by the Parsees on the shores of Western India. The priests of the latter wear also a plaited robe in some respects similar to that described above : a circular ring encompasses the figure in the form of a halo ; this has two arms, one on either side, which may represent wings, and would seem figuratively to imply the world and its Omnipresent Founder.

"In the left hand is grasped a circle, the symbol either of eternity or dominion ; while the right, with the arm bent and fingers extended, points upwards, and perhaps thus typically expresses a future state of existence.

"The features of this interesting figure, which are however, sadly mutilated, can scarcely be recognised, nor can the head-dress that it wore be described. The prostrate figure at the feet of the king, and the first of the erect captives, are in the same deplorable condition. Enough, however, remains of the first standing figure to denote a difference of dress from the rest of the captives behind him. He is habited in the long robe, probably of the priesthood, which extends to his ankles. The next has a shorter robe, reaching only to the knees. The third has a similar short tunic, and the fourth a longer garment extending to the calf of the leg. Each alternate figure then to the end of the string is clothed in the dress of the second preceding him ; the last being distinguished only by a high conical cap, similar to that worn by the Persians of the present day. This last figure appears to have been subsequently added to the group, and is carved somewhat deeper into the rock, in a recess appropriated for the purpose.

"Scattered about on the face of the sculptured slab, but generally above the head of the figures to whom they apply, are legends commemorative of their names and pedigrees, the names

of the province which they misgoverned, or the Satrapies over which they misruled. These are also in the Persepolitan cuneiform, with their Medio equivalents. The third standing figure is, however, an exception to the rule, for his descriptive legend is inscribed on the skirt of his garment, and partly on the rock adjoining him. The Babylonian correspondents to these several legends are engraved on the pedestal which the sculptures occupy, thus forming one great whole, which, for elaborateness of conception and skill in design, is scarcely surpassed, or even equalled, by any single work of art in all Persia, for it contains, in addition to the sculptures, nearly a thousand lines of complicated writing."

This work of art is situated about a quarter of a mile north of the Caravanserai of Behistan and without the aid of ropes and ladder it would be a matter of serious difficulty to reach the spot. On the debris of the mountain an isolated stone of a triangular shape was discovered with a rough but well defined design of three figures a little under the natural size. Immediately above the Khan of Behistan and about a quarter of a mile from the tablet of Darius; a work, of greater magnitude than those described, has been designed. The face of the hill for 200 feet in length and above 60 in height has been scarped to some depth and retains to this day considerable freshness of appearance.

"Major Rawlinson supposes the excavated scarp was intended to receive, or to form, the back wall of a temple or palace; and the numerous aligned slabs, of a massive character, that lie in disordered array on the slope at the foot of the hill would confirm the supposition, and at the same time mark it as an unfinished structure, that from some cause had met with interruption a short time after the design was commenced. The face, also of the building was to have been approached from the plain by a terraced way built on the *débris* at the base of the mountain, and a few well-executed capitals at the back of the Khan, of an oriental order, attest it as a work of a Sassanian age. These capitals have carved on two of their sides the figures of a male and female, whose heads are surrounded by a halo like ring, and may represent Khusru Parviz and his beautiful Shirin. The other sides bear, in graceful foliation, the elegant shaped design of a Thyrsus, and are wrought in a coarse species of marble. In many parts, however, of the more recent work, we can trace, by its blackened and worn appearance, the chisel of an anterior period; and it is to this circumstance, and to the visible remains of the 'phallos' that lie extended in broken fragments in front of the scarp, we may identify it not only as the spot on which Semiramis established the worship of the fructify-

ing principle as instituted by Isis, but as the actual site of the tablet on which she caused her own likeness, and those of a hundred of her guards, to be portrayed by the statuary." A description of the Tak-i-Bostan sculptures, which were also visited by Major Rawlinson, is given in the report ; but they have been visited by other travellers, and the sketches of Sir Robert Ker Porter are accurate representations.

On the 15th of September, the caravan of Commander Jones left Kirmaushah and crossing the Mirikh by a bridge of one arch resumed their route towards Harunabad. At which place there is a part of a slab containing a Grecian inscription. The slab is looked upon by the ignorant inhabitants as a talisman preserving the district from fever and famine ; they accordingly refuse to part with it. After leaving Kileh Zanjir, a ruined fort occupying a strong isolated position on the summit of a naturally scarped projection from the N. E. brow of Dalahu, the route was generally N. N. W. towards the town of Zohab. This place possesses a strong fort known as Ban Zardeh or as Kileh Yezdijird and the tomb of Baba Yadgar, which attracts numerous devotees. From Zohab the next march brought the caravan into the territories of Abdullah Beg, a sort of freebooter. Major Rawlinson presented him with a watch ; but this he refused to accept, so soon as he heard it tick, alleging that he was ignorant of such things and that he believed some live animal was concealed within the case. Leaving the hill of Semiram a natural fastness terminating in the successive peaks of Sur Khushk, Sartak and Bamu that rise to an elevation of 7,000 feet, about 5 miles to the right ; the river Diyaleh was crossed at the Gundar ford. The river breaks through a defile in the high range to the NE. and pursues a west course to Semiram through a deep and precipitous gorge which is represented as capable of being defended by a handful of men against any numbers. When Major Rawlinson crossed, it had only about 18 inches of water upon it ; but in the winter it must be wholly impassable. A little to the east of the ford the river is navigable for rafts and timber to the Tigris.

On the 25th of September, the town of Sulimaniyeh the capital of the Pachalic, was reached. It is a mere collection of small and mean houses containing only 500 dwellings. The narrative closes with an account of Ahmed Pacha, who in 1844 ruled over that part of Kurdistan and Commander Jones commenced his homeward journey on the 15th of September.

RESEARCHES IN LOWER MESOPOTAMIA.

Bombay Records, No. XLIII.—New Series.

IN March, 1850, Commander Jones set out from Baghdad on a surveying tour through a portion of Babylonia and Lower Chaldea. A steamer moving to allotted stations on the river; accompanied the movements of Commander Jones's party on land; thus enabling the land party to fix their position with great accuracy from day to day. The course of the expedition was along the west bank of the Tigris, partly on the line of the old Mosul road, which owing to the encroachment of the Arabs was abandoned some 50 years ago. Immediately to the east of a large canal called Nathriyat there are the remains of a large city called Abu Sakhr. It was upwards of a mile in diameter and is now quite levelled, the surface of the ground being strewn with brick and fine pottery. About an hour's ride from Abu Sakhr there are the ruins of an old town called 'Akbara. The tomb of Kef Ali is the only portion now standing, though it must have been an important place and owes its abandonment, like the other towns in the neighbourhood, to a great and sudden change in the course of the Tigris. The neighbourhood is visited by parties of Bedouin Arabs who remain concealed amongst the ruins in the hopes of meeting with caravans of pilgrims on their road to Samara. The capital of the Dijeil district in which Commander Jones was now travelling is a miserable village called Sumeycheh. It numbers about 200 mud huts inhabited by cultivators of the Shiah sect. The district which includes 200 square miles of the purest alluvial land surrounded on all sides by water is farmed out for £877 sterling per annum. But little is known of the early history of the Dijeil canal which leaves the Tigris in the neighbourhood of an ancient town called Istablat. In A. D. 1213 it was a stream of 50 yards in breadth and of a proportionate depth and was spanned by a bridge which still remains. It is built on Saracenic arches having intermediate with them three minor arched sluices or ways; the whole structure is composed of fine kiln burnt bricks. Above the arches on either side there is an Arabic inscription in relief. The letters are composed of brick let into a frieze work tablet, enclosed within an ornamental border of great taste and beauty. A facsimile of the inscription is given in the report.

The next object of interest which was visited by the exploring party was the ridge called Chali Batikh hitherto identified with the Median wall of Xenophon. The ridge bears evidence of

great antiquity, but Commander Jones says that "the illusion that has hitherto existed of its being identical with the Median wall of Xenophon, or the rampart of Semiramis of Strabo, must be dispelled, for neither in its construction nor extent will it in any way answer the description of the ancient writers, being, in point of fact, a mere dike thrown up diverting for the course of water, and discontinued when that purpose had been accomplished." The modern Manjur was also visited and was identified with the ancient town of Opis. Excavations would doubtless confirm the identity and would besides develop many relics of a past age, for it was no inconsiderable place, but theemporium of a country which at the time of the Macedonian conquest possessed a revenue of £5,80,00,000 sterling. The awful change that has taken place is attributable in a great degree to the change in the course of the rivers; the appearance of the country denotes that some sudden and overwhelming mass of water must have prostrated everything in its way. The Tigris, as it anciently flowed, is seen to have left its channel and to have taken its present course through the most flourishing portion of the district. Towns, villages, canals, men, animals and cultivation must thus have been engulfed in a moment. The change in the bed of the Tigris was in all probability caused by an earthquake. The date of the irruption may be assigned to the era of Khusru Parviz. From Manjur Commander Jones traversed the country in a North East direction but his course is traced out in the map affixed to the report.

MEMOIR OF THE PROVINCE OF BAGHDAD.

Bombay Records, No. XLIII.—New Series.

THE Memoir was submitted to Government on the 19th of April, 1855 and is accompanied by the ground plan of the city of Baghdad. For five hundred years Baghdad was the abode of the Abasside Khalifs and with more or less interruption the seat of the empire of the world. "After the total destruction of Seleucia and Ctesiphon, where the episcopal chairs had been established by the first missionary fathers, the eastern metropolitans were invested here, and the title of Bishop of Babylon still pertains to the archiepiscopal see; at present more respected in the title than honoured in anything else. It

appears that the western side of the Tigris was the chosen site for the original Baghdad; the larger portion of the town; now to the east of the river, having risen from a military position, and enlarged afterwards to suit the growing extent of the population; as individual families settled from nomade life, or as immigrants from more distant places. The new city was added to also by the remnants still lingering around the ruins of Ctesiphon and Seleucia; and, with captives and others, either brought or invited from lands over which the early Khalifs extended their arms, the city and tracts around soon became a highly populated district. All writers enlarge upon the masses that comprised its population in its more prosperous periods, though there is great discrepancy in enumeration. At the funeral of Ibn Hanbal, a much-venerated Mahomedan sage, who died at Baghdad in A. D. 855, we are told eight hundred thousand men and sixty thousand women formed a procession to his grave, and that near twenty thousand infidels became converts to Mahomedanism on the day of his death. With every allowance for exaggeration, both in respect to this statement, and to the number of three hundred and sixty baths mentioned as being requisite to the purifications of its inhabitants by other authors, we must admit the fact of its multitudes in a great degree; especially as the deserted tracts, covered as they are with the broken remains of edifices and canals, speak in favour of its truth. The myriads that were slain after the sack of Baghdad by Halaku in A. D. 1257, and by (Tamerlane) in A. D. 1400, incredible as the accounts are, show how prolific the numbers were; the former, by the smallest accounts, having massacred in cold blood three hundred thousand of the defenders of the city; while the latter erected beyond the gates, as a trophy of his prowess, a couple of pyramids which were constructed of the heads of ninety thousand of its most influential people. At the present time the census is about sixty thousand, having in the last thirty years dwindled from one hundred thousand to this amount from various causes, the chief of which being a great plague and inundation in 1831, and minor ones in the forms of mal-administration by successive rapacious governors." The wealth of the world at one time appears to have centred in this spot and manufactures, commerce, sciences and arts all flourished under the fostering care of many of the Khalifs. "The splendour of the court at Baghdad in those days excelled anything that was known. It is true it was a display of barbaric magnificence, but the usages of the age must be considered in contemplating it. In the annals of Abulfeda we are treated with the programme of the pomp exhibited in the court of the Khalif Al Moktadar on the reception of an ambassador from Greece.

The army was drawn up to the number of one hundred and sixty thousand men. The Khalif himself, surrounded by his chief ministers and favourite slaves covered with gold and jewels, resembled a planet amid a galaxy of stars. Eunuchs, black and white, with inferior officers to the amount of eight thousand, served as a foil to these gems. Silk and gold-embroidered tapestry, numbering thirty-eight thousand pieces, ornamented the palace walls, and on a curious tree of gold and silver were perched a variety of birds whose movements and notes were regulated by machinery. Twenty-two thousand carpets covered the floors, and a variety of vessels, each splendidly decorated, floated on the broad stream of the Tigris before the windows of the palace, while a hundred lions in charge of their keepers lent a contrast to the glittering scene.

"Its institutions boasted of authors, physicians, and philosophers; and in their libraries were stored a vast number of books, all manuscripts, for printing was not then invented. We may judge of their amount, when it is related that a doctor declined the invitation of a Sultan of Bokhara, because his books alone would have required four hundred camels for their transport.

"Money too must have been alike plentiful in its treasures. The founder of Baghdad, Al Mansur, is reported to have left at his death about thirty millions sterling. His son expended three millions in a single pilgrimage to Mecca; and we read of a Vizier having founded a College at the charge of two hundred thousand pieces of gold, endowing it at the same time with an annual sum equivalent to seven thousand pounds. What, then, must have been the revenue which admitted of such a drain on the coffers of Baghdad? We learn from a financial document, drawn up by one Ahmed Ibn Mahomed during the reign of the Khalif Al Mamun, that from the various tributes received in specie and kind, it amounted to about £5,60,00,000 sterling. As a dependency of Turkey in 1854 its revenue is under £3,50,000. The enclosed area within the present walls of Baghdad contains seven hundred and thirty-seven acres; the eastern portion of the city extending over five hundred and ninety-one, and the western over one hundred and forty-six acres. The foundation of the Baghdad walls dates from the third century of the Hejireh, when alarms were first experienced from without. The decline of the place is well marked on the face of them, for there are marked upon them all shades of patchwork during successive centuries even to the 'wattle and dab' embankments, hastily thrown up as stop-gaps, where, to prevent smuggling, the authorities have been too poor to give a more substantial repair. It has ten round towers, half enclosed within the outer wall, which, where they are situ-

ated, forms a semi-lune around them. These are solid constructions of brick with embrasures, and some few cannon on each. Many of them are of large calibre, long and heavy, and fine specimens in copper and brass of the ornamented guns such as were cast in the flourishing periods of the Turkish empire. Most of them were cast in Baghdad, which cannot now boast of a foundry capable of making a small ordinary cannon. There are some iron pieces of various nations, brought, doubtless, by the Tigris from Basreh, where they have been procured from foreign ships. Most of the pieces are sadly honeycombed, and their enormous vents show they have had much use in their day. Little damage need be apprehended from them now, crippled as they are in carriages; some of them even lying on the platform without any at all. There is some talk of converting them into copper and brass money; but the difficulty is, how to break them up for coining: and to remove them bodily. A strong embankment girts the ditch on the outside; and situated at irregular intervals between the round towers are buttresses, or half bastions of unequal dimensions, to give strength to the *escarpe* or *revetment* of the wall, as well as to protect it by a flanking fire, being, like the wall itself, loopholed for musketry. On the inside this wall is exposed only for thirteen feet, the rest being concealed by a thick rampart of earth, which strengthens it and serves at the same time to protect the *enceinte* from inundations of the river, which fills the moat and presses hard upon the fortifications. The wall affords some shelter to its defenders by being poorly arched, somewhat in the form of casemates; over these is a roadway a few feet broad; the top of the wall, which is embattled, acting as a parapet above it. The circuit of the eastern fortifications, including the river face, is ten thousand six hundred yards, that of the west being five thousand eight hundred yards; making an entire length of sixteen thousand four hundred yards of wall, an extent of brick work nearly equal to nine miles and two and a quarter furlongs of English statute measure. Such, however, is its state, that it offers scarcely any impediment to a well appointed force, as a breach could be effected any where in a few minutes' cannonade; and the numerical strength of the garrison and fighting population is so small as to be incapable of covering the defences, if threatened in more points than one. On the river face the town is quite open; and, with small steamers, or gunboats, judiciously anchored so as to command the sheriahs, or landing-places, an invading force might take possession of the place, either through the windows or balconies of the houses, or by a deliberate march through the open streets. The citadel offers only the same defences as the town." Views of Baghdad are attached to the memoir to which are appended

the prices of the different sorts of provisions procurable in 1855 and tables exhibiting the disposition of the Eastern portion of the town. Bullocks then cost from 800 to 600 piastres each, coffee sold for about 225 piastres per 18 lbs. and camels for slaughter at from 400 to 1000 piastres, potatoes and spirits were not always procurable and bread sold, for 3 piastres a pound. The coins in use are very numerous and of all nations; but that with the greatest circulation is the Mahomed Shah Keran and the Shamie is used amongst the Arab tribes to the south of Baghdad who prefer it to every other. "In reducing these coins to their equivalent in Rupees, the Riege Piastre has been taken as the standard at the rate of 21 per Mahomed Shah Keran, and 209 M. S. Kerans per 100 Rs. in consequence of its being that by which the value of the others is computed. All accounts are however, kept by the native merchants in Kammeri Beshlics." The Pachalic of Baghdad at the present time extends from the Northern shores of the Persian Gulf along the Euphrates river as far upward as Anah where the Aleppo districts commence. "From thence a line drawn across Mesopotamia to the Hamrin range of hills (where it crosses the Tigris) and led eastward so as to include the province of Sulimanyeh in Kurdistan, bounds it to the north, its eastern limit being then defined by the line of the Shirwan and Diyaleh rivers as far as Khanakin, whence it skirts the foot of the Zagros, including the great plains as far as the Kerha river west of Hawizeh, and thence to the angle formed by the meeting of the Shat al Arab and Mahomerah streams." With the exception of Baghdad itself there is scarcely a fixed abode deserving the name of a town, though Basreh and others are dignified with this title. The great plains of the Tigris are inhabited by nomades whose various tribes give great trouble to the Government. The most powerful are the Montafik, between Semaweh and Basreh, and the Beni Laam who inhabit the plains east of the Tigris and south of the Diyaleh as far as Kut al Amareh. The form of administration in Baghdad is based on that of Constantinople. The old despotic rule no longer continues and there is now a Council, at which the Pacha presides, which hears and determines all cases. The customs' duties of Baghdad have been in the decline for many years, owing to the opening of the northern roads for the entrance of Russian and English manufactured goods into Persia and Asia Minor by Syria and the Black Sea. The report gives the length of the Caravan journeys from Baghdad to various places, and proceeds.

The Euphrates has entirely lost its character as a navigable river, for many years past, owing to the embankments which formerly controlled the spring floods between Sukesh Sheukh and

Korneh having been swept away about 10 years back ; and the character of the tribes on its banks offers a serious bar to its usefulness for the purposes of commerce. The Tigris, on the contrary, is navigable from the sea to Baghdad at all seasons of the year by very ordinary steam vessels drawing three feet of water and the tribes are less violent and exacting than those on the Euphrates. Both rivers however could, under a good Government, be made navigable ; but as it is, they become more destructive and less useful every year. " The tides influence the stream of the rivers as far as one hundred and fifty miles from the sea, but the flood is not observed to run contrary to their course for the last thirty miles of this distance, in which it operates as a check upon the current, and this only when its force is not very strong during the freshes the flood is sometimes observed to fail altogether except on the spring tides ; at which times the rise and fall, from the bar to Basreh, averages about eight feet, and this diminishes gradually to the Hud river on the Tigris and to Negayb on the Euphrates, where a couple of inches of daily swell serves to mark the limit of this phenomenon in nature ; and taking as the zero of the scale the junction of the Tigris and Euphrates, ten inches for every twenty miles of river course will, as near as possible, mark the annual gradations in rise from the lowest level at the various places where the distances touch.

" The best native boats in use are well adapted for their work. They are strongly built ; and, though rough, are of an excellent model. They draw, when laden, from four and a half to six and a half English feet, according to the season. These alone go as far as Basreh. They carry from eighty to one hundred and twenty tons, and sail well when they can profit by the wind, which is very seldom on the passage up stream. The journey from Basreh to Baghdad occupies with a single band of trackers from forty to sixty days ; with a double set, a cargo has been brought to the city in twenty-two days. The distance by the river is little short of five hundred miles. On the upper part of the stream near Baghdad there is another form of boat used called Siffneeh and Teradeh. They are curiosities in model and construction, and are entirely coated with bitumen on the outside, or the stream would otherwise flow through them. They cannot have changed from the earliest periods ; indeed, it is not unlikely that their lines are those of the Ark of the Patriarch diminished only to suit modern requirements. The first named is used for bringing small wood from the jungles at no great distance, for the supply of the town and for other local wants. The second is small and chiefly employed in net fishing. The better sort of fuel is, however, brought to Baghdad in the Basreh

trading boats, for it is plentiful only in the jungles around Kut and the Hye river. The Gufa, or 'coracle,' a wicker basket coated with bitumen, is the ordinary vessel in use for passing the Tigris and for service near the town. It is very ancient, being mentioned by Herodotus and portrayed also on the sculptures of Nineveh." Commander Jones here gives a list of the various animals of the province and appends a report upon the tribes of Irak family by family.

THE TOPOGRAPHY OF NINEVEH.

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COMMANDER Felix Jones observes that though the researches of Layard and Botta have given us an insight into the economy of the Assyrians, yet they have not described Assyria as she is and it is this want which he wishes to supply.

The site of ancient Nineveh was admirably selected. Undulation and vale, ridge and plain alike capable of tillage offered a sufficiency of pasture. Crossed too as the tract is by many water-courses and generously visited with dews and winter rains the tract was then as now doubtless a most fertile region. Of the Nineveh ruins the features which first attract notice are the hills of the Jebel Maklub and Mar Daniel, but the attention is soon drawn from these to the numerous tumuli which cover the plain. "They are all the undoubted work of the human race, but whether of the Assyrian period or of a Parthian era, there are at present some doubts. Some refer them to the latter, principally from the absence of any thing tangible to theorize upon in the more regular tumuli; most of which, as we at present see them, being mere mounds of earth elevated in different place to heights varying from 20 to 80 feet above the plain. Others, such as the great pyramid at Nimrud, are found to be regular structures of sun-dried brick; observable only when the interior of the mound is arrived at, from the action of the elements on the outside having, in the course of time, reduced the material to the consistency and form of its original earth. The principal ones have square platforms, at present but little raised above the plain, though evidently connected in some way with the higher structures adjoining them. Though now rounded, and for the most part preserving a beautiful conical outline, we are disposed to think most of them were originally of a pyramidal form, the gradual

crumbling of the apex and falling *débris* having served to obliterate the angles in the lapse of time."

The Tigris, Zab and Khosr-su were the rivers which watered Nineveh and served besides as a means of defence. The principal wall is that on the east side. It is raised on the crest of a spur of the rock, selected for the site of the town, and forms a slight curve in the direction of the rock with its convexity to the north-east by east. This wall crossed the Khosr. The wall to the north averages, in its present crumbled state, forty-six feet above the actual soil, and a slope partly artificial and partly formed of the debris of the wall forms a glacis of 130 feet horizontal width into the city Moat which is 10 feet deep. This portion of the wall is 6,800 feet in length while that to the south of the Khosr varying little from it in height or breadth, is 9,200 feet long having, at 4,000 feet, where the main road to Baghdad passes through, two elevated tumuli, from which much pier masonry bearing cuneiform legends has been extracted. At 7,850 feet from the Khosr there is another elevation which probably acted as a keep to the work. The north wall extends from the North East angle of the city in a perfectly straight line, its length is 7000 feet nearly. To the east of a gateway in this wall, which now leads to the great mound of Koiyunjik, there is an elevated circular mound covering some splendid specimens of colossal sculpture. The west face of the city was originally washed by the Tigris and was further protected by a wall 13,600 feet long, which runs, during 3,500 feet of its course at an accurate right angle from the North wall first described. This portion is broken by many gaps and its dimensions as compared with the eastern wall are inferior and low.

In general language the *enciente* of Nineveh may be said to form a tuncated triangle the sides of which figure have a length respectively of 16,000, 7,000, 13,600 and 3000 feet; thus the circuit of the city was altogether seven miles and four furlongs of English statute measure. The contained area is about 18,000 acres, and if to each inhabitant of the city be allotted 50 square yards Nineveh would only have accommodated a population of 1,74,000 persons. "But of the existing remains of Nineveh, the most remarkable and interesting are undoubtedly the great mounds bearing, at the present time, the appellations of Koiyunjik and Nebbi Yunus." Koiyunjik has proved one of the greatest repositories of Assyrian art and covers a space of about 100 acres of ground. Nebbi Yunus the other artificial tumulus covers an area of about 40 acres.

Upon this mound there is a conspicuous white building said to be the tomb of the prophet Jonah. The site, which is therefore in Mahomedan eyes sacred, is used as a burying place.

Thus the excavation of the tumulus is excessively difficult and its contents are still unknown; though no one doubts but that it contains the remains of such a stately edifice as its neighbour. "The above eminences exhibit the only vestiges that are in any way remarkable within the area of Nineveh. There are, however, some low mounds of *debris* accumulated north-west of Koijunjik, which point out the situations of buildings; and, on the rising grounds to the east, here and there, may be traced the alignments of others just above the surface of the soil. They offer nothing of interest, and we agree in the opinion given by other travellers, that the enclosure never contained any vast connected pile of buildings, like our modern cities, but on the contrary, exhibited spaces of garden, and occasionally plots of open ground spread over with tents, as may be seen at present within the *enceinte* of Baghdad." With regard to the site of Nineveh, Commander Jones differs in opinion from Layard, who transfers the capital of Assyria to Nimrud, which place as compared with Nineveh is, in size, insignificant. What remains of its *enceinte* occupies an area of a little less than a thousand acres. "The northern half of the city only appears to have been protected by regular walls, which are still traceable; but, unlike similar structures at Nineveh, they could not have been remarkable for great altitude or dimensions. The more prominent and regular walls of the city are as near as possible in the direction of the true cardinal points; the northern one having an outwork or projecting buttress just midway in its length. Gates appear to have been situated at uncertain intervals in the wall." It was from Nimrud that Layard obtained the majority of his Assyrian remains. The report concludes with a short account of the Nineveh survey, and tables are appended for the construction of the general map of Assyria and Mesopotamia.

COMMERCE AND SHIPPING OF THE STRAITS SETTLEMENTS.

For 1854-55.

DETAILED statements of the trade of the Straits Settlements have been published during some years. The means for obtaining these returns consist of an office at each station for the registry of imports and exports. Regulation III. of 1833 provided that no goods were to be landed or shipped without certain preliminary forms, under a penalty of 500 Rs.; but the Clauses do

not state who is liable to the penalty, nor is there any discretion allowed in imposing it. The most gross and the most minute infraction of the law are subject to a like penalty. Under these circumstances the returns made to the office are purely voluntary. They may be made or they may be withheld. They may be correct or merely imaginary. There are no means of testing their accuracy and no advantage can be gained by giving in a bonâ fide statement. If then it be deemed that the correctness of the returns is more important than the freedom of the Ports measures must be taken to enforce the former whatever may become of the latter.

The statement for the Prince of Wales Island was drawn up under the direction of the Resident Councillor and submitted to the Governor of the Straits Settlements on the 1st of February, 1856.

The tables exhibit the quantity and value of the imports and exports by sea, the quantity and value of the imports re-exported, and the number and tonnage of the square rigged vessels which arrived and departed during the year. Owing to some places of consequence not being in the printed forms, the Nicobars, Arracan, Moulmein and Rangoon are included under the head of Pegu, Pungah under the head of Siam, and the West Coast of the Peninsula under the head of Sumatra.

The total value of the trade at Prince of Wales Island, or Penang, according to the periodic statements appears to be

For 1851-52,	For 1852-53.
Rs. 1,59,84,621,	Rs. 1,68,73,475.
For 1853-54,	For 1854-55.
Rs. 1,95,17,474,	Rs. 2,05,03, 774.

From the above statement it will be seen that the trade though large is but slightly increasing.

The accompanying table exhibits the value of the imports during the years 1853-54 and 1854-55. But, out of Rs. 1,02,22,373 which is given by the table as the value of the imports, there was Rs. 19,57,408 treasure. The chief articles of import are cotton goods, which in 1854-55 were valued at Rs. 14,48,882.

**COMPARATIVE STATEMENT of the Value of Imports at Penang during the Official Years
1853-54, 1854-55.**

IMPORTS.		1853-54.	1854-55.	Increase.	Decrease.
Great Britain, ..	..	10,35,726	7,66,556	...	2,69,170
North American, ..	..	1,31,098	3,97,978	2,06,880	...
Calcutta, ..	..	10,09,704	10,29,564	19,860	...
Madras, ..	..	..	2,97,816	2,97,816	...
Bombay, ..	..	..	31,002	31,002	...
China, ..	..	2,46,173	3,68,517	1,22,344	...
Siam, ..	..	..	18,55,913	18,55,913	...
Sumatra, ..	..	17,38,074	26,33,447	8,95,373	...
Malayan Peninsula, ..	..	4,64,743	..	..	4,64,743
Miscellaneous, ..	..	42,64,796	34,01,580	..	8,63,216
Total, Company's Rupees, ..		88,90,314	1,02,22,373	29,29,188	15,97,129
Increase, Company's Rupees, ..		...	88,90,314	15,97,129	..
			18,32,059	18,32,059	

The value of the exports from Penang during the official year 1853-54, 1854-55 is shewn by the statement appended :—

*COMPARATIVE STATEMENT of the Value of Exports at Penang during the Official Years
1853-54, 1854-55.*

EXPORTS.		1853-54.	1854-55.	Increase.	Decrease.
Great Britain, ..	..	17,45,331	16,43,336	...	1,01,995
North American, ..	..	5,99,789	13,04,285	7,04,496	...
Calcutta, ..	..	5,84,953	8,76,579	2,91,626	...
Madras, ..	..	..	3,13,590	3,13,590	...
Bombay, ..	..	..	74,057	74,057	...
China, ..	..	6,81,608	8,71,747	1,90,139	...
Siam, ..	..	..	9,39,585	9,39,585	...
Sumatra, ..	..	20,73,566	29,67,523	8,98,957	...
Malayan Peninsula, ..	..	7,93,651	..	...	7,93,651
Miscellaneous, ..	..	41,48,262	81,96,842	...	9,51,420
Total, Company's Rupees, ..		1,06,27,160	1,21,87,544 1,06,27,160	34,07,450 18,47,066	18,47,066
Increase, Company's Rupees, ..		...	15,60,384	15,60,384	

The chief products of Penang and forming an important item in the exports are spices and sugar, the growth and manufacture of the latter being now almost entirely confined to Province Wellesley, the slip of territory on the Peninsula forming the Harbour of Penang. The quantity of sugar exported shews the extent to which the manufacture is now carried on.

Export of Sugar from Penang.

1851-52,	1852-53.
Piculs 48,510,	Piculs 54,888.
1853-54,	1854-55.
Piculs 56,875,	Piculs 69,352.

The value of the spices exported during 1854-55 was Rs. 7,86,235. The imports re-exported during the same year were valued at Rs. 99,25,476 and the treasure re-exported was Rs. 23,84,938. The number of square rigged vessels which arrived at the port from ports not subject to the Bengal Presidency was 365 and their tonnage was 79,095 tons. The number of square rigged ships which departed to ports not subject to the Bengal Presidency was 363 and their capacity was 76,902 tons. In addition 1,322 native craft of a total tonnage of 27,813 tons arrived, and 2,062 with a tonnage of 35,014 tons departed.

The Governor of the Straits Settlements in transmitting the returns of the export and import trade of Malacca observes that under the present system they are a mere set of figures of "no value or use to any one; and in addition mentions that if the Governor General in Council will permit him to prepare trade statements of his own, he will engage without further expense to furnish within a reasonable period all possible information "that can be useful and interesting both to those on the spot and to those at a distance; but if it be considered indispensable that the information required should be drawn up in the form used in the Duty Ports" he must apply for an enlarged expenditure and at the same time cannot add in any way to the value or interest of the information to be afforded.

The great value of trade statements seems to Mr. Blundell to be "to afford the Mercantile world the means of obtaining, at the earliest practicable date, some knowledge of the amount, nature and course of the trade of a Port, and the earlier this information can be given to the Mercantile Community the more valuable will such Statements become; but to comment in 1856 on a trade of which the Returns do not extend beyond April, 1855, seems unnecessary, as it certainly will be uninteresting to those who may be connected with the trade." Owing to the opening first of Penang and then of Singapore the trade of Malacca

is but a shadow of what it formerly was. The value of the imports during 1851-55 was Rs. 35,77,558 of which Rs. 11,29,738 was the value of the imported treasure. The merchandise exported during the same year was estimated at Rs. 27,47,382 and there was treasure exported to the amount of Rs. 7,29,727. The chief item of the export trade is tin, of which a statement is annexed :—

1851-1852.		1852-1853.		1853-1854.		1854-1855.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Piculs.	Rupees.	Piculs.	Rupees.	Piculs.	Rupees.	Piculs.	Rupees.
25,487	9,17,532	22,185	7,98,660	20,463	10,23,150	21,928	11,15,674

The number of ships including country craft which arrived was 1,507 and their total capacity was 57,630 tons. The ships which departed during the year possessed a tonnage of 66,885 tons and their number was 1,428. All the ships both of the arrivals and departures were under British colours with the exception of some native craft.

The Resident Councillor at Singapore in submitting the trade returns for 1854-55 remarks that "although there is an apparent decrease in the trade, yet this ought to excite no surprise considering the large increase as shewn in the returns for 1853-54; the year ending 30th April, 1856 will exhibit results quite as satisfactory."* The aggregate trade at the date of the transmission of the statement was little short of 10 millions sterling, and the influx of shipping; the demand for land and godowns suited for commercial purposes; the rapid extension of the town; the increase of banks and the stability of merchants and all traders indicated a gratifying and high state of prosperity.

The report further states that it would be quite a waste of time to dilate upon the defective state of the commercial Returns which accompany the despatch.

"The value of Merchandise imported and brought on the Returns for 1854-55, independent of goods transhipped, and the intermediate trade with Penang and Malacca, aggregated Rupees 2,85,36,543, and the Treasure and Bullion Rupees 81,57,894,

* The value of the goods exported from Singapore during 1855-56 was Rs. 4,42,72,290 which shews an increase of Rs. 1,02,72,817; whilst the value of the import was Rs. 49,14,41,675 which exhibits an increase of Rs. 1,16,95,428.

showing a decrease compared with the previous year as here elucidated :—

Merchandise imported in 1853-54, ...	Rupees	31,915,468	0	0
Merchandise imported in 1854-55, ...	"	2,85,36,543	0	0

Decrease, Company's Rupees 33,78,925 0 0

Treasure and Bullion imported in 1853-54, ...	Rupees	95,61,443	0	0
Treasure and Bullion imported in 1854-55, ...	"	81,57,894	0	0

Decrease, Company's Rupees 14,03,549 0 0

The estimate value of Exports in 1854-55, not including Penang and Malacca, was as follows, compared with the year 1853-54 :

Merchandise exported in 1853-54, ...	Rupees	2,38,97,889	0	0
Merchandise exported in 1854-55, ...	"	2,35,15,720	0	0

Decrease, Company's Rupees 3,82,169 0 0

Treasure and Bullion exported in 1853-54, ...	Rupees	1,01,80,176	0	0
Treasure and Bullion exported in 1854-55, ...	"	69,37,322	0	0

Decrease, Company's Rupees 32,42,854 0 0

The amount of Imports and Exports, including Treasure to and from Penang and Malacca, was as under :

In 1853-54, ...	Rupees	67,48,966	0	0
In 1854-55, ...	"	65,98,141	0	0

Decrease, Company's Rupees 1,50,825 0 0

The general result of the Commerce of Singapore during 1854-55, as exhibited in the Return, is as follows :

	Merchandise.	Treasure.	Total.
Imports, ...	2,85,36,543	81,57,894	3,66,94,437
Imports, Penang and Malacca,...	24,13,266	6,38,544	30,51,810
Exports, ...	2,35,15,720	69,37,322	3,04,53,042
Exports, Penang and Malacca,...	17,29,710	18,16,621	35,46,331
Total, Company's Rupees, ...	5,61,95,239	1,75,50,381	7,37,45,620

Every dependance may be placed in the Snipping Returns particularly of Square-rigged Vessels; the inward Tonnage of all classes aggregated, 4,00,293 Tons.

	Square-rigged Vessels.	Tons.
Arrived in 1853-54, ...	1,028	3,46,997
Arrived in 1854-55, ...	1,030	3,19,080
Increase, ...	2	27,917 Decrease.

	Junk, Prows, &c.	Tons.
Arrived in 1853-54, ...	2,595	87,390
Arrived in 1854-55, ...	2,401	81,213
Decrease, ...	194	6,177

The chief productions of Singapore and forming a considerable part of her export trade are pepper and gambier, both of which are extensively cultivated in the interior. The value of the Gambier exported in 1853-54 was Rs. 13,29,414 and the value of the pepper was Rs. 14,12,201. The amount of goods imported for re-exportation is comparatively speaking unimportant.

THE JAILS OF THE MADRAS PRESIDENCY.

For 1855.

ON the 14th of October, 1856, the Inspector of Prisons of the Madras Presidency submitted to the Government a report upon the sanitary condition of the jails and regretted the delay which had taken place in its submission.

He observes that the present report is confirmatory of the fact that certain classes are peculiarly susceptible of disease when confined in jail, and that to such a sentence of imprisonment is almost a sentence of death.

The average number of prisoners in the jails at any one time of the year 1853-54 was 6372 and the average percentage of deaths was 5·3 whilst 97·4 underwent treatment for disease.

The average strength of prisoners during 1854-55 was 6,535 and the percentage of deaths to the average strength was 4·9 whilst those under treatment were 102·7 per cent. This exhibits a decrease in the mortality when compared with the preceding year. For, though the actual admissions into hospital have slightly increased as 105 to 100 per cent. yet the mortality has been less by a $\frac{1}{4}$ per cent. or as 5·6 to 6·1. In only two of the Jails has epidemic disease prevailed to any serious extent, cholera appeared in the Salem Jail and small-pox at Calicut, in the former 38 casualties from 57 seizures appear in the return

and in the latter 32 deaths from 89 attacks. The improved health of the prisoners is mainly owing to improvement in ventilation, greater accommodation and greater cleanliness. The gaols of Coimbatore, Combaconum and Madura shew the same decided unhealthiness as they have done for many years and yet no gaols in the presidency have had the same amount of attention paid to them. At Bellary the water is a cause of disease and at Madura, Coimbatore and Salem "it is so bad that any one tasting it can at once perceive it" In no instance during 1854-55 has disease been engendered by employment; on the contrary, the occupations of the prisoners appear to have been conducive to their health.

Amongst the gangs of prisoners employed on the roads or on special work, as at Paumbaum, although the admissions into hospital have been numerous 1063 from an average strength of 334, yet the ailments have generally been of a trivial nature and readily amenable to treatment. The greatest number of admissions have occurred at Paumbaum where the nature of the work exposes to slight accidents and febrile attacks, but the mortality has been but small.

Table shewing the number of Admissions and Deaths in each Gang of Prisoners from 1849 to 1854, contrasted with the results of 1855.

		Strength of Gangs.	Admissions.	Treated.	Died.	Cholera		Percentage of			
						Admitted.	Died.	Admissions to strength.	Deaths to strength.	Deaths to treated.	Deaths to strength excluding cholera.
From 1849 to 1854,	Guindy, ...	872½	932	952	53	38	26	106·8	6·07	5·5	3·09
	Paumbum, ...	1,013½	2,977	3,026	23	...	...	293·8	2·2	0·7	2·2
	Moonchoultry,	379½	1,103	1,126	18	4	1	291·02	4·7	1·5	4·4
For 1855,	Guindy, ...	135	148	156	3	2	2	109·6	2·2	1·9	0·7
	Paumbum, ...	134	630	636	2	...	...	170·1	1·4	0·3	1·4
	Moonchoultry,	55	284	299	10	9	5	516·3	18·1	3·3	9·09

The relative healthiness of the several prisons of the Madras Presidency will be readily perceived from the accompanying table which shews the average strength of the prisoners with their sickness and mortality in 1855 as contrasted with 1854:—

JAILS.	1854.				
	Average strength.	Treated.	Died.	Percentage of	
				Treated to	Deaths to
				Average strength.	Average strength.
House of Correction, ...	225 $\frac{1}{2}$	278	9	123.5	4.0
Chittoor, ...	451	545	18	120.8	4.0
Nellore, ...	384	110	26	28.6	6.7
Chingleput, ...	274 $\frac{1}{2}$	136	13	49.6	4.7
Guntoor, ...	122	116	2	95.0	1.6
Cuddalore, ...	427 $\frac{1}{4}$	370	17	86.6	3.9
Mercara, ...	29	83	2	286.2	6.8
Trichinopoly, ...	383 $\frac{1}{2}$	178	18	46.4	4.6
Coimbatore, ...	244	90	10	86.8	4.0
Combaconum, ...	194 $\frac{1}{2}$	512	21	263.9	10.8
Madura, ...	200 $\frac{3}{4}$	292	6	145.2	2.9
Salem, ...	140 $\frac{1}{4}$	252	11	160.0	7.8
Negapatam, ...	79 $\frac{3}{4}$	149	19	186.2	23.7
Tranquebar, ...	504	129	2	258.0	4.0
Tinnevely, ...	142 $\frac{1}{2}$	197	9	138.7	6.3
Cochin, ...	42	50	5	119.0	11.9
Myavaram, ...	14 $\frac{1}{2}$	41	1	292.8	7.1
Paulghautcherry, ...	76 $\frac{1}{2}$	55	...	72.3	...
Masulipatam, ...	262 $\frac{1}{2}$	106	7	40.4	2.6
Rajahmundry, ...	194	138	5	71.1	2.5
Vizagapatam, ...	176	249	7	141.4	3.9
Chicacole, ...	183 $\frac{1}{2}$	125	15	68.3	8.1
Itchapore, ...	49 $\frac{1}{2}$	18	4	36.7	8.1
Bellary, ...	412 $\frac{3}{4}$	273	25	66.2	6.0
Cuddapah, ...	451 $\frac{3}{4}$	508	20	112.6	4.4
Cumbum, ...	39 $\frac{3}{4}$	30	4	76.9	10.2
Kurnool, ...	131 $\frac{1}{2}$	226	14	172.5	10.6
Tellicherry, ...	160	159	1	99.3	0.6
Calicut, ...	319	247	19	77.4	5.9
Mangalore, ...	239 $\frac{1}{2}$	176	23	73.6	9.6
Honore, ...	168 $\frac{1}{2}$	189	2	112.5	1.1
Sircee, ...	26 $\frac{1}{2}$	86	...	380.7	...
Cannanore, ...	76	99	3	130.2	3.9
Total, ...	6,372	6,212	338	97.4	5.3

JAILS.	1855.				
	Average strength.	Treated.	Died.	Percentage of	
				Treated to	Deaths to
	Average strength.			Average strength.	Average strength.
House of Correction, ..	221	136	8	61.5	3.6
Chittoor, ...	432	490	8	113.4	1.8
Nellore, ...	358	43	11	12.0	3.0
Chingleput, ...	260	248	11	95.3	4.2
Guntoor, ...	124	123	8	99.1	6.4
Cuddalore, ...	318	275	16	86.4	5.0
Mercara, ...	40	94	4	235.0	10.0
Trichinopoly, ...	368	257	16	69.8	4.3
Coimbatore, ...	289	144	14	49.8	4.8
Combaconum, ...	163	471	18	288.9	11.0
Madura, ...	188	307	17	163.2	9.0
Salem, ...	143	265	40	185.3	27.9
Negapatam, ...	60	79	7	131.6	11.6
Tranquebar, ...	57	120	2	210.5	3.5
Tinnevely, ...	171	193	3	112.8	1.7
Cochin, ...	43	60	1	139.5	2.3
Myaveram, ...	24	76	1	316.6	4.1
Paulghautcherry, ...	98	135	8	137.7	3.0
Masulipatam, ...	234	244	4	104.2	1.7
Rajahmundry, ...	173	143	14	82.6	8.0
Vizagapatam, ...	160	220	4	137.5	2.5
Chicacole, ...	195	96	8	49.2	4.1
Itchapore, ...	65	34	2	52.3	3.0
Bellary, ...	565	438	15	77.5	2.6
Cuddapah, ...	448	616	12	137.5	2.6
Cumbum, ...	40	32	...	80.0	...
Kurnool, ...	118	113	6	95.7	5.0
Tellicherry, ...	160	114	2	71.2	1.2
Calicut, ...	342	483	37	141.2	10.3
Mangalore, ...	234	181	16	77.3	6.8
Honore, ...	169	138	6	81.6	3.5
Sircee, ...	30	57	2	190.0	6.6
Cannanore, ...	73	110	2	150.6	2.7
26 JAN 65 Total.	6,363	6,535	315	102.7	4.9

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THE
ANNALS
OF
INDIAN ADMINISTRATION.

EDITED BY
MEREDITH TOWNSEND.

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1858.



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26 JY 65

THE
ANNALS
OF
INDIAN ADMINISTRATION.

TEA CULTIVATION.

India Records, No. XXIII.

BHURTPUR, one of the Kumaon Plantations is situated "eight or ten miles to the Eastward of Nainee Tal, and is at an elevation of about 4,500 feet above the level of the Sea. It consists of a succession of terraces reaching from the bottom to the top of a small Hill; the soil is composed of light loam mixed with small pieces of clay-slate and trap or green stone, of which the adjacent rocks are chiefly composed." It is about six acres in extent and in high condition. A large tract of land has been set apart in the adjoining hills for its extension, a portion of which has been already cleared. Generally in Mr. Fortune's opinion the land on the estate is unequal, and he would propose that the more favourable spots should be selected at first for the cultivation. The Plantations of Lutchmesir and Kuppeena "are on a Hill side near Almorah, about 5,000 feet above the level of the Sea, and together cover about seven acres of land." The soil is well adapted for Tea, and the bushes in good condition. Kuppeena is perhaps the best, as many of the plants in Lutchmesir appear to be getting old. Hawulbaugh and Chullar "are situated about six miles North-West from Almorah, at an elevation of 4,500 feet above the Sea. In 1854, Dr. Jameson states that Hawulbaugh covered fifteen acres, and Chullar thirty." The former has some excellent land, but the forest and fruit trees though they look pretty injure the Tea. They should be cleared away. The young plants moreover appear to have been planted somewhat carelessly. The mode of gathering the leaves also requires improvement. At present too many leaves are taken away from the plants, which has the effect of stunting them. The Kutyoor estate is a large tract of land which "has been

taken up near the head of the Byznath Valley, about thirty-five miles Northward from Almorah." A considerable portion of the tract is well adapted for Tea, but some of it is much too wet.

The Gurhwal Plantation "is in Eastern Gurhwal, near the village of Paorie, in Latitude 30° 8' North, and Longitude 78° 45' East. It consists of a large tract of terraced land extending from a ravine in the bottom of a valley to more than 1,000 feet up the sides of the mountain. The lower portion of this land is said to be about 4,300 feet above the Sea, while the top of the surrounding mountains are from 7,000 to 8,000 feet." Part of this Plantation only is well adapted to the cultivation, and some thin stony land appears to have been planted within the last few years. On the good land the plants are succeeding very well, but on the whole Mr. Fortune was disappointed in the Plantation. The expediency of carrying the Plantation higher up the mountain seems very doubtful. The bushes look as if they wanted more heat.

The Deyrah Dhoon Farm. In 1850 Mr. Fortune found this Farm anything but flourishing. In consequence of his suggestions the system of cultivation was changed, the trenches were filled up, irrigation was discontinued, and more judgment was exercised in gathering leaves from young plants. The result has been most satisfactory. The supply of labour is deficient, and only a portion can be said to be under cultivation. Mr. Fortune has seen no finer Plantations in China. The plants are in high health, large and bushy, and yield annually large crops of leaves. It is not, however, expedient to plant on land but half ready.

The Punjaub Plantations. The Nagrowta Farm "is situated in the Kangra Valley about nine miles from the Old Fort, and covers apparently about five acres of land. It was planted in 1847, and consequently has been in full bearing for several years. In 1855 it produced 1427 lbs. of Tea, or about 330 lbs. per acre. The soil is a brownish loam, moderately rich in vegetable matter, and well suited for Tea cultivation. The plants are healthy and vigorous." The Bowarnah Farm "is another small experimental Plantation further to the Eastward in the same valley, and about twenty miles from Kangra. It appears to be five or six acres in extent, and was planted about the same time as the former." It yields upwards of 300 lbs. per acre. The soil is a brown loam very well suited for the cultivation. The Holta Farm "is about 26 miles North-East from Kangra, at the foot of the high mountain range, and nearly 4,000 feet above the level of the Sea. Here snow falls annually and covers the ground for several days at one time. The high

mountains behind are white with snow for the greater part of the year.

"The extent of this Plantation is stated to be about 1,200 acres, and of these 700 are already under cultivation. About 20 acres were planted in January, 1852, 300 in 1853-54, and 380 in 1855-56." The soil is a yellow clay with a surface rich in vegetable matter. It is admirably adapted for Tea cultivation. The plants are healthy, vigorous, and full-bearing, and irrigation has been avoided with most satisfactory results. Too many leaves however are plucked off, young as well as old, a matter of considerable importance.

Mr. Fortune considers that the Himalayas are excellently adapted to the cultivation of Tea, but some knowledge of the plant and of horticulture is required to make success certain. It is a great mistake to suppose that Tea will grow on land too poor for anything else. Tea in order to be profitable requires a good sound soil, a light loam well mixed with sand and vegetable matter, moderately moist, and yet not stagnant or sour. There is no scarcity of such land in the Himalayas. The leaves even from full grown plants should not be plucked too freely, a point to be carefully impressed upon the natives. The natives "instead of nipping off the upper part of the young shoot with its leaves, as the Chinese do, strip the leaves from it and leave the bare stems. These bare stems generally die down to the nearest leaves, and then the plants get covered with dead stems and present a sickly appearance. About an inch and a half, and sometimes more of the top of the young shoots is soft and succulent, and makes just as good Tea as the leaves themselves. The Chinese know this well, and hence they always nip off this portion with the leaves." Very few of the old tough leaves should be plucked. They are worthless for the market, and invaluable for the health of the plant. The Chinese tea-growers on the Plantations should instruct the natives in the art of Tea plucking. The Tea originally procured had an "Ankoy" flavour which was objectionable. Mr. Fortune however had sent round twenty-five makers from the best districts in China, and already a marked improvement has taken place in the appearance of the Himalayan Teas. The thousands of Tea plants sent round should not be mixed up with the original plants, in order to detect whether the peculiar flavour of the Himalayan Teas is inherent, or caused by bad manipulation.

To cultivate Tea a large amount of capital is required. "It is true that a man with small capital, and having the requisite amount of knowledge—if content with a moderate, or even handsome and certain remuneration for his outlay and labour—might succeed and gain a comfortable living by the cultivation

of Tea on the Himalayas." A large public company is more likely to succeed than private capitalists "I would strongly advise Government not only to discourage but to take measures to prevent, mere adventurers from getting up a company of this kind,—men who have no other object in view than power and place, and who would probably in the end bring ruin upon the shareholders, and give a check to Tea cultivation in these Provinces, which it would take many years to recover." The size of the buildings and number of tea-makers should be immediately increased. The Zemindars who it was hoped would take to the cultivation have not done so. In one instance two small Farms of eight acres together were given to a Zemindar about thirty-five miles from Almorah. A Government factory where his leaves were purchased at Rs. 8 a maund was within three miles of his Farm. "The circumstances in which this man was placed were altogether most favourable. Supposing the land to have been yielding annually 800 lbs. of raw leaves per acre, which is a very low average, he would have been realizing Rupees 80 an acre for his land, or Rupees 640 for the 8 acres under Tea—a sum I should imagine twice as large as he would make from any other crop and with less trouble." The man when Mr. Fortune visited the place was cultivating rice above the Tea. Another Plantation in Hawulbaugh belonging to Captain Ramsay is in good order, and in two years will produce large quantities of Tea and keep on producing for many years. The Zemindars, however, must ultimately take to the cultivation, and the quantities of foreign capital thus introduced must be of material benefit to the cultivators. Another great benefit of the cultivation is that even in the driest weather there is always a crop. On one occasion when nearly every other crop had failed the Tea seemed quite uninjured.

The following is Mr. Fortune's estimate of the return to be expected from a great Tea estate. A little one will not be profitable in the same proportion, while in a larger one the proportion of profit will again increase:—

ROUGH SKETCH of the Quantity of Land which could be brought under Tea Cultivation, with a Capital of Rupees 2,00,000, and also intended to show the probable amount of Expenditure and Profit spread over a space of six and eight years.
1,800 ACRES OF LAND.

Expenditure from the 1st to the 6th year inclusive.

	Rupees
Factory and houses for Tea-makers,	6,000
Bungalow for Overseer,	1,400
Pay of Overseer, at 100 Rupees per month, for 6 years,	7,200
Ditto of 500 men, at 4 Rupees per month, for 6 years,	1,44,000
Ditto of 10 Chowdries, at 8 Rupees per month, for 6 years,	5,760
Ditto of 1 Moonshoe, at 12 Rupees per month, and 2 Chuprasies, at 5 Rupees per month, for 6 years,	1,584
Rent of Land for 6 years, at 1,350 Rupees per annum,	8,100
Expense of preparing Tea, in 3rd, 4th, 5th and 6th years, say 20 men, at 5 Rupees per month,	4,800
Four Chinese Tea manufacturers, at 34 Rupees per month, for 4 years,	6,528
Implements, passage money for manufacturers, carriage, &c., say,	8,628
Contingencies for 6 years, say 1,000 Rupees per annum,	6,000
	Rupees 2,00,000

Working Expenses in the 7th and 8th years.

Overseer's pay for 2 years,	2,400
200 men for ditto,	48,000
10 Chowdries for ditto,	1,920
1 Moonshoe and 2 Chuprasies for ditto,	528
Rent of Land for ditto,	2,700
Expense of preparing Tea doubled, say,	4,800
Wages of 4 Chinese for 2 years,	3,264
Contingencies for wear and tear of implements, boxes, &c., in 2 years,...	5,000
	Rupees 68,612 68,612
Total ... Rupees 2,68,612	

Income from the 8rd to the 8th year inclusive.

	Rupees
Tea manufactured in the 3rd year, say 10 lbs. per acre, at 8 as. per lb. }	9,000
ditto in the 4th year " 30 lbs. " at ditto,...	27,000
ditto in the 5th year " 80 lbs. " at ditto,...	72,000
ditto in the 6th year " 120 lbs. " at ditto,...	1,08,000
ditto in the 7th year " 150 lbs. " at ditto,...	1,35,000
ditto in the 8th year " 200 lbs. " at ditto,...	1,80,000
Total in the 8th year, ...	5,81,000
Deduct amount supposed to be expended in 8 years,	2,68,612
* Profits, ...	Rupees 2,62,388

* There would be sundry expenses deducted from this sum, such, for example, as interest of capital for the first 6 years, auctioneers' fees, carriage, &c., if the Teas were sold in India; and carriage, freight, and other shipping charges if exported to Europe and America, or the Colonies. I have put down the pay of the Overseer at Rupees 100 per annum, as that is the sum at present paid by Government; but it would probably be necessary to raise that to Rupees 300 if a good man could be procured. I have supposed the whole of the 1,800 acres to be planted in one year; but this would probably be impossible, as it would take some time to select the land, and the requisite number of plants might not be procurable at once. In this case, however, the expense for labour would be proportionably less.

R. FORTUNE.

On 17th November, 1856, Dr. Jameson reports that Mr. Fortune's suggestions are not original, and have long since been carried out. They will all be found in the Notes prepared for the benefit of Overseers.

1. On suitable ground. "Care must be taken to chose only well drained land, not dry, stiff clayey land, in which nothing will grow, but land rather moist, in which the soil is light or free. All low places, where rain water rests, must be avoided such as the lowest part of valleys, &c." Tea can be mixed with dry crops, but not with rice, as the water necessary for the rice spoils the Tea.

2. On preparation of the ground. "Before sowing Tea seeds let the land be well ploughed or trenched with the phaoorah to the depth of 18 or 24 inches, and all the weeds removed; and let it be well manured to the extent of 60 to 70 maunds per acre if manure be plentiful. If not, a much smaller quantity will do. Let it then be smoothed and thrown into beds, it will then be ready for seeds and plants."

3. On the method of sowing seeds and on the treatment of young plants. Tea seeds ripen in October and should be sown soon after. Sow them very close to a depth of one inch in drills 8 inches apart. Water them sparingly, "which need not be again repeated until the seedlings begin to show themselves above ground, after which time let them be watered every six or seven days." The seed beds ought to be weeded three or four times during the season.

4. Method of transplanting. "As soon as the seedling plants are 8 inches in height, they are fit for transplanting, and in doing so they ought to be planted $4\frac{1}{2}$ feet apart. Let holes be dug to the depth of $1\frac{1}{2}$ feet or more if necessary. In lifting, therefore, the plants to be transplanted, the ground ought to be well opened up, and if possible each plant lifted with a small ball of earth attached to the roots. Let the earth be then well pressed down with the foot at the roots, and watered. If manure be available, a small quantity ought to be put into each hole." Transplanting should begin with the rains and continue through them.

5. On plucking. The season for gathering leaves commences in April and continues till October. The leaves should not be pulled till the plants are three years old. Only the fresh and young leaves should be plucked. During the season four gatherings may be taken from the same plant. In the second year the terminal shoots ought to be pinched off to induce the plant to take a bushy form. This should be done two or three times during the season. "To Zemindars desirous of undertaking Tea cultivation, plants and seeds in any number

and quantity will be issued from the Government Plantations at Hawulbaugh, Bheemtah in Kumaon, and at Boru in Gurhwal. All Tea leaves brought to the factories in good order will be purchased at the rate of 8 Rupees per maund and to the first party who brings leaves the following rewards will be given.

"The first party who brings pukka 100 maunds of good fresh leaves will receive Rupees 300. The first party who brings 50 maunds, Rupees 100. The first party who brings 25 maunds Rupees 50. The first five parties who bring 12 maunds Rupees 30 each. The first ten parties who bring 10 maunds Rupees 20 each. Each party must show that the leaves brought have been gathered from different Plantations."

Dr. Jameson enters into a defence of the coarse Teas said by Mr. Fortune to be too largely produced at the factories. It is his object to reduce the quantity, but the price though low is remunerative, and the coarse Tea eagerly purchased by the natives. Dr. Jameson proves that Plantations formerly condemned by Mr. Fortune now satisfy him, and adds that the extra room required has been given, while the stunted look of the plant of some Plantations is owing to the drought for three successive years. The Chullar land said to be thin and stony was only taken because there was no other, and the Tea plants from China are most carefully kept distinct. Two native Plantations are in good order, and the Zemindar specially mentioned in Mr. Fortune's report is aware of his blunder in suffering rice to be grown above the Tea, and means to repair it. The proprietor however did receive Rs. 152 for his Tea last season, while the rent of his entire estate, covering many square miles, is only Rs. 40. Several Europeans moreover have opened Plantations. Col. Elwall and Capt. Thulwell opened a large Plantation in Deyrah Dhoon with complete success. "In the Simla District, Mr. Purkely has commenced Tea planting, and has been liberally supplied with plants and seeds. In Assam Mr. Carnegie has established himself as a Tea-planter in a Government grant, and been liberally supplied with seeds. The Assam Company, anxious to improve their Tea Plantations by introducing Kumaon seeds, have also been liberally supplied. In Cachar several Calcutta firms have taken up Government grants for the purpose of cultivating Tea, represented by Mr. Bugby, Mr. Saunders, Mr. Schiller, all, of whom have been or are being supplied with seeds. At Darjeeling several parties have taken up grants and have there commenced Tea cultivation, and I believe there are upwards of 10,000 acres of good land available for the purpose. Into the Cashmere valley the Tea plant is being introduced by the Maharajah Golaub Sing, I, at the request of His Highness, through the Commissioner

of Lahore, having sent him thirty coolie loads of plants and twelve loads of seeds." Finally, Dr. Jameson while in justice to himself and his Overseers he answers Mr. Fortune's report willingly acknowledges that Mr. Fortune's services have been invaluable to the Plantations.

On 10th February, 1857, Mr. Ramsay, Commissioner of Kumaon reports on the prospects of Tea cultivation in that district. He does not agree that the small capitalist will be unable to succeed, he himself having looked after three Plantations. Mr. Ramsay would not recommend any capitalist to take a Government grant of land at first, because clearing it hurriedly is expensive, and the probability is there would not be much bad and indifferent land mixed with the good portions in such a tract. With a little patience and enquiry it is always possible to purchase a village at a distance from Almorah in the less cultivated parts of the Province." A village with 50 acres of cleared land and two or three hundred of forest land would cost Rs. 500 with a jumma of Rs. 30 a year. He is "surprised that so few have settled as Tea-planters. There is no risk as in Indigo. Drought or storms of hail may diminish the supply of leaves for a time, but failure is impossible. No animals destroy the plant. There is no chance of good Tea becoming unsaleable. The occupation is a healthy one, the climate delightful, and the superintendence of such a nature that the Plantation may be left from time to time without risk." He would not yet sell the Government Plantations, as it is too soon. The cultivation is not yet popular enough. On 17th March the Superintendent of the Kumaon Gardens reports that it is a mistake to believe that land fitted for Tea cultivation is limited. There are in Kumaon alone 3,50,000 acres of such land, yielding 100 lbs. to the acre. This territory with the land equally fit in Hazarah, Cashmere, Junmoo and the Protected Sikh States could produce 100 million pounds of Tea, or as much as the whole China export. "But let British capital and enterprise be embarked in proportion to the importance of the cultivation and the support it merits, and thus give employment to thousands of poor but able-bodied and excellent workmen, when their labours are properly directed, and these hills will soon become as important to the State as any Province of the plains. Labour is cheap, the climate is admirably fitted to the European constitution, the people are docile and easily guided, provided that they are properly treated and their prejudices respected."

Dr. Jameson adds directions for the cultivation and preparation of Tea, the value of which consists in their minuteness, and descriptions of instruments and buildings valueless without plates. He says that labour in Kumaon is abundant and cheap,

and the market as yet is not sufficiently full. The Thibetans will buy any quantity of cheap Tea. Cashmere requires 2,00,000 lbs. a year. Natives are very fond of Tea but want it cheap.

The prices fetched at Almorah are					per lb.
Gunpowder,	..	..	..	..	4 8 2
Young Hyson,..	...	...	...	...	2 14 5
Hyson skin,	..	...	..	...	0 5 10
Souchong,	...	..	..	..	2 9 11
Pouchong,...	...	...	..	..	1 2 10
Bohea, ..	...	..	..	...	0 7 10

Building materials abound, supplies are cheap, and lands are granted on the following terms :—

“Each grant will be of not less than 200 or more than 2000 acres. More than one grant may be taken by one person or Company on the applicants satisfying the Local Authorities acting under the usual control in the Revenue Department, of their possessing sufficient means and capital to undertake an extended cultivation and manufacture of Tea.

“One-fourth of the land in the grant will be given free from assessment in perpetuity, on fulfilment of the conditions below stated.

“The term of the first lease will be for four and twenty years, the grant will be rent free ; in the fifth year one anna per acre will be charged on three-fourths, or the assessable portion of the grant ; two annas per acre in the sixth year ; three annas in the seventh year, and so on, one more anna being added in each year, till in the last the maximum rate is reached of one Rupee per acre. The full assessment on a grant of 200 acres will thus not exceed 1500 Rs. per annum.

“The following are the prescribed conditions of clearance :—

“At the close of the fifth year from the date of grant, a twentieth part of the assessable area ; at the close of the tenth year one-fifth of the assessable area ; at the close of the fifteenth year, half of the assessable area ; and at the last year, three-quarters of the assessable area is to be cleared and well stocked with Tea plants.

“In the twenty-first year, on the fulfilment of the above conditions, the proprietary right in the grant, and the right of engagement with Government, shall vest in the grantee, his heirs, executors or assigns, under the conditions generally applicable to the owners of estates in Kumaon, and the rate of assessment on the lands in the grant, in whatever manner cultivated, shall never exceed the average rate on grain crop lands in the same locality.

“On failure of payment of the prescribed assessment in

any year, or of any of the above conditions (the fact of which failure shall, after local enquiry, conducted by the Senior Assistant Commissioner, be finally determined by the Sudder Board of Revenue) the entire grant shall be liable to resumption at the discretion of Government, with exception of the assessable area which may be *bona fide* under cultivation with Tea, and to a further portion of land which shall be allowed in perpetuity, free of assessment to the extent of one-fourth of such cultivated area. The portions so exempted will remain in the possession of the grantee subject to the usual rates and rules of assessment in the District.

" Grantees shall be bound to erect boundary pillars at convenient points round the circuit of a grant, within six months from its date, failing which such pillars will be put up by the Government Officers, and the cost thereof shall be recoverable from the grantee in the same manner as the regulated rate of assessment.

" No claim to the right and interest in a grant on any transfer by the original grantee will be recognized as valid, unless on registry of the name of the transferee in the office of the Senior Assistant Commissioner.

" So long as Government establishments for the experimental growth and manufacture of Tea shall be maintained in the Province, supplies of seeds and plants will be given gratis to grantees, on application to the Superintendent, Botanical Gardens, North-Western Provinces, as far as may be in his power." Thermometric tables are appended. It is added that the Tea planter must be continually among his men, and the peculiar diseases of the spot are few. Small-pox rages occasionally, and goitre is very common, but yields to iodine.

The cost of a factory will depend on its size but the land required for a Plantation of 1,500 acres will cost about Rs. 2,500 in the hills or 3,500 in Deyrah. The expense of a thousand acres for eight years would be Rs. 2,75,000, the profit Rs. 1,67,972.

STATISTICS OF 24-PERGUNNAHS.

THE 24-Pergunnahs lie between 22° and 23° of North Latitude and 88° and 89° of East Longitude. The name arises from the fact that the territory originally ceded to the Company really contained twenty four pergunnahs. The estate was made over to Col. Clive by Jaffier Ali, in 1759, and the rent Rs. 2,22,000 was paid to him till his death in 1774. It then reverted to the Company. The area was then supposed to be 4882 square miles. In 1759

the Company sold them by auction for Sa. Rs. 7,65,700 a year, reserving the royalties worth Rs. 1,50,000 more. In 1820,23 the pergunnahs now forming the Baraset district were incorporated with the 24-Pergunnahs, which is now bounded on the North by Nuddeah, on the East by Jessore, on the South by the Sunderbunds and on the West by the Hooghly. Its extreme breadth from North to South is 71 miles, and its extreme breadth 78 miles, the superficial area being 2277 miles. The whole district is flat, full of Jheels one of which the Boyrah covers 40 square miles, and intersected by innumerable khals or tidal creeks. "In the Western and Southern portions, an embankment has been raised by the Government, commencing from the Muneekhalee Khal, a little below Akra Farm, and extending along the bank of the River Hooghly as far South as the Cheeta-mooree Telegraph, thence along the borders of the Soonderbund jungle, till it meets the Biddiaduree River, running along its right bank and terminating about four miles to the East of the Dhaupa Toll House." The Northern portion is very rich, but the Southern is spoiled by the Salt water. In the North-East immense numbers of date trees flourish without any cultivation.

The principal rivers are "the Hooghly, the Biddiaduree, the Piale, the Jaboonah or Echamuttee, the Khalindee, the Culputoo, and the Cobbaduk." The Hooghly is navigable up to Calcutta, a distance of 100 miles, for ships of large tonnage. There is one passage which under various names connects several streams leading through the whole district in an easterly direction. There is also another passage from Joynuggur in Pergunnah Boreedhattee.

The principal roads are the Grand Trunk Road running through Barrackpore to the North-West, the road from Calcutta to Diamond Harbour, from Calcutta to Midnapore, from Calcutta to Joyepore, from Calcutta to Baraset. These roads are metalled. The principal secondary roads are "the road leading from Barrackpore to Baraset, and continuing on to Baeerhaut, Soladanah, with a branch to Hurwa and Takee on the Jaboonah River.

"The road from Nyehatee, nearly opposite Chinsurah and Hooghly, leading partly through the Nuddeah District and leading to Badooreah (where a branch joins No. 1 to Baeerhaut) on the Jaboonah River, which it crosses by a ferry continued on through Poora Boikari, joined at Ootur Pranshuhur, by a road coming from Kullarahaut in District Nuddeah and from thence branches off into three roads, one leading to Boyrah and Parooleah, another to Shatkira, Dhoolihaut, Chandpoor and Paithullee, and the third to Shorooleer and Sakduh on the Cobbaduk River." Many of these are mere tracks, and there

are points of the district in which there are no means of communication except the tidal khals. The South of Calcutta indeed during the rainy season is a vast lake, traversed by "Saltees," boats made of the trunk of a sal tree. "The climate is that of Bengal generally, healthy and unhealthy according to the season. The year is divided into three seasons—the hot, rainy and cold. The hot season commences from the middle of March and ends about the middle of June, or as soon as the first rains set in. The rainy season continues till the end of September and sometimes runs into October. The remainder of the year constitutes the cold weather." The hot season begins with the change of the monsoon. In the latter part of March, April and part of May the heat is relieved by the North-Westers, storms of wind accompanied by lightning and rain. Though the heat by day is excessive the nights are comparatively cool. In July and August heavy rains fall and it is not till October that the rain gradually ceases, and the weather becomes cool and agreeable. "The population of this District is 9,47,204 souls, the details of which are :—

Men, ...	3,50,466	} Exclusive of the City of Calcutta and suburbs.
Women, ..	3,12,578	
Boys, ...	1,61,026	
Girls, ...	1,23,134	
Total, ...	9,47,204	

"Of these, in the Allipoor Division of the District, the Hindoos are about 3 to 1 of the Mussulmen. In the Baraset Division the Mussulmen are about equal, or a fraction more than the Hindoos. The average per square mile is 421 and per house 5,40." The population of Calcutta is about 3,61,369 and Major Smyth gives the population and area of each Pergunnah. The population appears to have increased from 267 per square mile in 1822 to 421 per square mile in 1856. This indicates prosperity, but the prosperity is confined to the zemindars as rents and leases are insecure. The people are however contented with little, and their character may be summed up as Rammohun Roy summed it "the peasants or villagers, who reside at a distance from large towns and head stations and courts of law, are as innocent, temperate, and moral in their conduct as the people of any country whatsoever. The virtues of this class, however, rest at present chiefly on their primitive simplicity, and a strong religious feeling, which leads them to expect reward or punishment for their good or bad conduct, not only in the next world but, like the ancient Jews, also in this ; *secondly*, the inhabitants

of the cities, towns or stations, who have much intercourse with persons employed about the courts of law, by zemindars, &c., and with foreigners and others in a different state of civilization, generally imbibe their habits and opinions—hence their religious opinions are shaken without any other principles being implanted to supply their place—consequently, a great portion of these are far inferior in point of character to the former class, and are very often even made tools of in the nefarious work of perjury and forgery; *thirdly*, a third class consists of persons who are in the employ of zemindars, or dependant for subsistence on the courts of law, as attorney's clerks, and who must rely for a livelihood on their shrewdness, not having generally sufficient means to enter into commerce or business." The want of annual food and very early marriage debilitate the Hindoo. The Mahomedan living more freely has a higher physique. Their habitations are usually of mud, sometimes of brushwood plastered with mud. These huts have no windows or apertures except the doorway, the smoke escaping through the space between the wall and the roof. The houses are shrouded in jungle usually productive, and considered by the Bengalee necessary to keep off the sun and his neighbour's eyes. Each house has a patch of ground in which a few vegetables are reared, and these with rice form the staple food. Occasionally the Bengalee eats a little putrid fish. The Mahomedan however affords himself fowl, kid or pigeon. "Their dress usually consists of a turban, a cloth fastened round the loins, and falling as low down as the knee; over this the better classes wear a long robe of cotton, with a white scarf tied round the waist, the end being thrown over the shoulder. The Mussulman wears a pair of cotton drawers, white and sometimes colored, down to the ankles—a robe of cotton, which, to distinguish him from the Hindoo, he buttons on the left shoulder, the Hindoo fastening it on the right—and a turban on the head." The ryot wears a rag for decency's sake, and sometimes a conical hat made of palm leaves. "The dress of the females is very elegant. The close part of the Hindoo female dress is a jacket with half sleeves, which fits tight to the shape, and covers, but does not conceal the bust. The remainder of the dress consists of a long piece of cotton or silk which is wrapped round the middle, and contrived to fall in graceful folds, till it be below the ankle on one leg, while it shows a part of the other. It is gathered into a bunch in front, and the upper end crosses the breast, and is thrown forward again over the shoulder or over the head like a veil. The hands and feet are usually adorned with ornaments, and sometimes a jewel is worn suspended from the nose. Even the working class of women have their anklets and armlets of brass and sometimes silver."

The Bengalee rises early, and usually eats three meals, at 9 or 10, at 12 or 1, and at 10 p. m. They employ their leisure in music, singing, dancing and various games of chance. The women do all the in-door work, cooking included. Major Smyth describes various games of chance, musical instruments, and indigenous modes of conveyance, and proceeds to describe the agriculture of the district.

The agriculturists number 2,90,176 to 60,290 of the consuming class. The area includes

" Cultivation, ...	8,78,528 acres
Village sites, rivers, jungle, roads, &c., ...	3,58,400 "
Culturable and fallow, ...	2,00,512 "

Total, ... 14,37,440 = 2,246 sq. miles."

The staple product is rice of which there are three kinds—Aooosh, Amun and Borah. "The first is sown in May and June and reaped in August and September; the second is sown in June and July and reaped in November, December, and January; the third is sown in January and February and reaped in April and May." The Aooosh and Bora paddy are thus cultivated. "In the month of 'Vaisakha' (April and May), when it rains, the plough-men till a piece of high ground first, which is called 'Khill Bhanga,' and a few days after, they till it again—this is termed 'dochasee' They then sow the seed in 'Jyista' (May and June) and plough and harrow the ground a third time. When the plants grow up, they harrow the land once more and root up the weeds. Ten or twelve ploughings are generally required for cultivating one beegah of ground, and one Rupee per beegah, more or less, is expended for the purpose." "The 'Amun' paddy is cultivated by sowing and planting. In the month of 'Vaisakha' (April and May), after a fall of rain, they plough a piece of 'Shalee bhoomee' or low land, and prepare or granulate the soil after rain in 'Jyista' (May and June), and then scatter the seeds thereon. When seedlings shoot forth, it is called 'caukree tula.' In the month of 'Asarh' (June and July) or 'Sravun' (July and August), they plough and harrow the rice field and make a clayish surface; then transplant those seedlings therein in rows of about a span apart." The rice has four distinct names. While growing it is called paddy, in the husk dhan, when shelled aman, and dressed anna. The rice is cut by men sitting instead of stooping, the grain being beat down by a bamboo pushed over the field. "The cleaning or husking of the rice is thus done. As much as can be husked during a day is put into an earthen pot, to soak in water during the night; in the morning it is half-boiled, and then spread out in the sun

to dry. This is done entirely by women. The cleaning or husking is effected by means of an instrument called a 'dhenki.' " This is a lever which is raised and depressed by the pressure of the foot, and having a pestle at the other end beats the husk off the rice. A maund of paddy usually yields 16 to 18 seers of clean rice. The thresher if he parboils the rice receives one-fourth for his labour; if not one-eighth. There are numerous modes of preparing rice, and the natives make out of it an intoxicating drink. There are small quantities of tobacco, gram, oats, wheat, and mustard and pan and sugar-cane are grown for the Calcutta market. Goor is manufactured and Indigo grown. The goor is the chief native product is thus prepared. "The date-tree, 'Khejur,' is reared from seed sown in the month of Asarh (June and July). It makes its appearance above ground in about five or six months. It comes to perfection in from four to six years. Much depends on the soil, saltish land being most favourable to its growth. The juice is thus extracted: Five or six of the lower branches on one side of the tree are cut down (to do this a man climbs to the top of the tree, supporting himself by a strong rope, which he passes round the tree and his own loins, tying the ends—he slides the rope up and down with his hands, planting his feet firmly against the tree, and throwing the weight of his body on the rope—in this manner, his hands are free for action—he cuts the tree with an instrument something like a bill-hook and very sharp), and a flat space about 9 inches in breadth cleared. The surface of this space is renewed twice, once in every ten days. At the end of this time, a longitudinal incision is made in the centre, and a small piece of bamboo, about 9 inches long, with a furrow cut in it, is driven into the incision. Below the end of this bamboo, an earthenware pot is hung at sunset, and the juice runs down the furrow into it. In the morning, before sun-rise, these pots are taken down and are generally full." A tree usually yields a maund a month. The goor is then prepared from the juice by boiling. "Sugar made from the 'goor' sells from 7 to 8 Rupees per maund. The 'goor' is sold to Sugar Factories, both European and Native, in the vicinity, who manufacture sugar from it and it is also exported to Calcutta. An intoxicating liquor called 'toddy' is made from the juice by fermentation. In November and December it requires from 8 to 10 seers of juice to make 1 seer of 'goor,' in January and February 6 to 8 seers, and in March and April 5 to 6 seers, and from 20 to 25 seers of sugar are manufactured from a maund of 'goor' of the average kind." The natives make sugar by expressing the treacle from the goor in bags. The

remainder is put into opened mouthed pots with a hole at the bottom. A little milk and water is sprinkled to clarify the sugar and in about twenty-five days all the moisture has run off. The remainder is sugar. Pan is usually cultivated on stiff land and the garden is covered in, watered and manured with oil-cake. Five cottahs covered with pan cost Rs. 86-4, and yield about Rs. 130, or deducting the expense of labour the work being done by the proprietor's family, the returns are about 500 per cent. on outlay. There are three crops a year. Tobacco. "The tobacco grown in the District is of two kinds, viz. Hinglee and Mandhatha, the former is the best. Light soil is usually selected, which is ploughed weekly for eight months, from February to September. The seed is sown in a nursery and transplanted about the end of September, each plant being 18 inches apart. The tops and suckers are broken off in November and December, to prevent their running to seed, and the leaves are collected in January. The produce of a beegah is from 12 to 14 maunds. The leaves are spread out for three or four days on the ground, night and day; they are then strung on a string, and hang within the house, to get the benefit of the smoke for a month, and in March are made up into bundles of 1½ maunds each, and sold." Tobacco costs about Rs. 23 per beegah and yields about Rs. 35-2. Sugar-cane. "A rich soil is selected, and high enough to be above the usual water mark of the rainy season. The field is ploughed 10 or 12 times and manured. Cuttings of the cane are planted horizontally in the ground in March, about 18 inches apart, which sprout up in a month. In July and August ('Shrabun') the plants are about 3 feet high, when they are tied up three or four together with their own leaves, to prevent their being blown over. If there is no rain in September or October, it is necessary to water them. The canes are cut in January and February and the juice is extracted by a mill." The cost of a beegah of sugar-cane is about Rs. 18 and the produce about Rs. 30.

The plough is very light, only scratching the ground. It is drawn by cattle whose tails the ploughman takes in one hand while he guides the plough with the other. The harrow "consists of a bamboo split in two and joined across by smaller pieces of 18 inches to 2 feet long, in the form of a ladder." The rake resembles the English harrow; the reaping-hook is nearly the same as in England, but large short-handled hoes called phowrah, and khoodal, and take the place of the English hoe and spade. A complete set of farming implements is worth about Rs. 4-2-6, the plough, phowrah and khoodal being worth respectively one rupee, ten annas, and twelve annas. The most

common trees are the bamboo, mango, cocoanut, palmyra, betelnut, tamarind, date, neem, bale tree, cotton tree, gab (used as a dye) babool, bur, custard-apple, plantain, and others.

The vegetables are "ginger, turmeric, onions, begun, sweet potatoe, radishes, kumrah, meeta kumrah or pumpkin, sem, sorrel, karellah, oorcha, turbooj or water-melon, cucumber, peas, ole, garlick, carrots, french-beans, and an endless variety of mosalas, tarkari and sag, which are used in seasoning the food of the natives." The wild animals are the leopard, hog, deer, wild-cat, mungoose, jackal, and fox, but the tiger sometimes makes an incursion from the Sunderbunds, and the rhinoceros is found occasionally in Pergunnah Dholeapoor. The game consists of "the hare, jungle fowl on the borders of the Soonderbunds, wild ducks and teal of all kinds, snipe, and a few quail." The fish are numerous, including the mango, mullet, bhektce, hilsah, rocee and others. The domestic animals are all inferior, but include cows, sheep, goats, bullocks and buffalos. Ducks, fowls and pigeons are reared by Mussalmans. The district contains no minerals of any kind.

The commerce of the district comprises rice, goor, pan, tobacco, indigo, cloths, silk, mats, curds, vegetables, fish, and pottery. Almost all the traffic is carried by water.

Accounts are kept as in other parts of India, but the cowrie currency is thus calculated :—

4 Cowries,	=	1 Gundah.
20 Gundahs,	=	1 Pun.
4 Puns,	=	1 Anna.

The standard of weight is the tola of 180 grains. The standard seer is 80 tolas, and the standard maund lbs. 100 troy. The maund for weighing salt is $2\frac{1}{2}$ per cent. heavier than the bazar maund. In parts of the district other weights are used. Liquids are sold everywhere by weight in seers.

The linear measure originated thus :—

5 Fingers' breadths,	=	1 Palm.
6 Palms,	=	1 Hath.

Which in square measure becomes

20 Gundahs,	=	1 Chittack.
16 Chittacks,	=	1 Cottah.
20 Cottahs,	=	1 Beegah.

The standard beegah of the district used for the survey is 1600 square yards.

The native usually tells time by the length of his shadow but he divides the day thus :—

15 Namesh,	=	1 Kastah.
15 Kastah,	=	1 Pol.
60 Pols,	=	1 Dundo.
2 Dundo,	=	1 Mohoteek.
15 Mohoteek,	=	1 Day of 12 hours.

The seasons are six—Greeshoo, Bursha, Shurut, Heymunt, Seesheer and Busunto.

“The District comprizes two grand Divisions, viz. Allipoor and Baraset, and contains 48 Pergunnahs. Of these 37 are *bona-fide* Pergunnahs, the remaining 11 consist of villages scattered over these 37, which, when collected together, obtain a Pergunnah name. In addition to the above, there is the City of Calcutta and the adjoining Government Estate of Punchannugram, neither of which come under this denomination.” The Alipore Division contains 1,036 square miles. The Baraset Division contains 1,241 square miles or altogether 2,277 square miles containing 4,450 village Circuits. Major Smyth describes the tenure, and observes that the Zemindar usually lets land at from 12 As. to 1 Re. 4 As. per beegah, but the ryot pays from one rupee to five. His house at starting costs him Rs. 15, and his agricultural implements, bullocks and furniture 17-2. The cost of working his nine beegahs is Rs. 41 a year, and the profits about Rs. 26-2. The return is large as a percentage, but he pays 37½ per cent. on the capital absorbed in setting himself up. A yeoman however with a small capital renting 30 beegahs makes 125 rupees a year. “This farmer, notwithstanding the rent he has to pay to the Zemindar, which is nearly half of his expenditure, and having no interest to pay, clears 57 per cent. on his expenditure. The interest would have been 83 Rupees. Out of his proceeds, he has to pay his religious fees, which cannot be estimated, and his barber. Farms vary from 8 or 9 beegahs up to 150 beegahs: there may be a few above this area.”

Major Smyth proceeds to describe Calcutta. It comprises an area of 7·80 square miles, and the population according to Mr. Simm’s estimate is 3,61,369. There are 13,120 pukka houses, and 49,445 kutchas. There are 265 places of worship, 167 of which are Hindoo, 74 Mussalman, 1 Jewish, 1 Armenian, 1 Greek, 1 Chinese, and the remainder different denominations of Christians. “There are 1,043 tanks, 29 public buildings and offices, 9 buildings belonging to charitable institutions, 5 burial grounds, and 20 bazars or markets. The total length of the public roads is 125 miles. The highest part of the town in Clive Street, opposite Cotton Street, is 30·63 feet above the zero of the Tide Gauge at Kyd’s Dock-yard at Kidderpoor, and the lowest part in Muchooa Bazar Street is 18·01 feet above the same datum.

Calcutta has extensive, irregular, and thickly-peopled suburbs. In 1717 the Company purchased 38 villages about Calcutta, which now form these suburbs. Panchanungram, which name would lead to the supposition that 50 had been purchased, is situated North, East and South of Calcutta, and comprises an area of 23·17 square miles. They extend $2\frac{1}{4}$ miles North, $2\frac{1}{4}$ miles East, and $2\frac{3}{4}$ miles South of the boundary of the town itself, and are out of the jurisdiction of the Supreme Court." Major Smyth adds facts of all kinds about each Pergunnah, and supplies the following statistics of the Survey:—

STATEMENT shewing the date of commencement and final completion of the Survey of 24 Pergunnahs District, Area, Cost, and Average Rate per Square Mile.

District.	Name of Surveyor.	Date of commencement of Survey.	Date of completion of Survey.	Area in square miles.	Cost.	Average rate per sq. mile.	Remarks.
24 Pergunnahs,	Major R. Smyth, ...	22nd December, 1846, ...	30th September, 1852, ...	22.77	Rs. As. P. 1,12,625 3 4	Rs. As. P. 49 7 4	The first season's work of this District, executed by Mr. Wilson, comes to about 150 Rs. per square mile. This was rejected, and consequently affected the general average. Excluding Mr. Wilson's work the cost of the 24 Pergunnah Survey, under Major Smyth's superintendence comes to Rupees 38-6-10 per square mile.
Punchanungram,	Ditto, ...	1st November, 1848,	30th November, 1852,	10.75	9,952 8 10		This being a minute survey of Holdings, the rate per mile is not applicable.
Soonderbund Boundary, ...	Ditto, ...	15th January, 1850,	30th September, 1851, ...	250.00	16,720 9 5		This being a Topographical Survey of the line of boundary, with a certain portion of the Grants in the Soonderbunds, the rate per square mile is not applicable.

REVENUE SURVEYOR GENERAL'S OFFICE;

Calcutta,

The 21st April, 1857.

H. L. THULIER,
Deputy Surveyor General.

THE MUTINIES.

Parliamentary Blue Books.

THE Governor General in Council on the 7th February, 1857 forwards to the Court of Directors a correspondence relative to a feeling of uneasiness created amongst the men attached to the depot of musketry at Dum-Dum consequent on a report having reached them that the grease used in the arsenal for preparing the cartridges for the Enfield Rifles was composed of the fat of "pigs" and of "cows." The men were appeased by an order permitting them to receive the cartridges without grease, and to apply with their own hands whatever mixture they might prefer. As service ammunition required to be greased with some substance that would be durable, experiments were ordered to be made at Meerut, where H. M.'s 60th Rifles were stationed, to ascertain the best ingredients for greasing the cartridges, with reference both to the feelings of the native soldiery and to the requirements of the service. The matter was fully explained to the men both at Barrackpore and at Dum-Dum, and they appeared perfectly satisfied; but the Governor General recommended to the Home Authorities not to send ready-made ammunition from England. The Court of Directors on the 8th April approve the proceedings, and assent to the recommendation. They send a Memorandum by the Inspector General of Stores, stating that the grease used in making up cartridges forwarded to India is composed of five parts tallow; five parts stearine; and one part wax. The composition of the tallow itself, he cannot explain, but there is no hog's lard in it.

On the 8th April, the Governor General reports that the Sepoys at Barrackpore have objected to the paper of the rifle cartridges, and that a special Court of Enquiry was held at that station to ascertain the cause of the objections. The proceedings recorded show that the unfounded suspicion of the sepoy that the cartridges were greased with the fat of pigs and cows could not be removed; and as no composition free from grease appeared to answer the required purpose, the sepoy was allowed to tear off the end of the cartridge with their left hand, instead of biting it off. This altered mode of loading was also made applicable to the ordinary percussion musket on the recommendation of the Commander-in-Chief; and the Governor General in Council recommends that if the new plan is found to be as effective as the old practice of biting the end off, the change may be introduced in Her Majesty's Regiments in India. On the same date the Governor General in Council reports to the Court of Directors the circumstances which had led to the

dismissal of the whole of the native officers, non-commissioned officers, and sepoy of the 19th Regiment of Native Infantry who were present with the Regiment at Berhampore on the 26th of February last, when that Regiment committed an act of mutiny in refusing to obey their officers, and in forcibly possessing themselves of their arms. The ill feeling showed itself at Berhampore towards the end of February. The men refused to receive the new cartridges, alleging that the paper of which they were made was of two sorts, and was said to be greased with cow's and pig's fat. The Governor General on the 27th March recorded a Minute, concurred in by the Members of Council, stating the grounds for disbanding the 19th Regiment. After narrating the principal facts connected with the conduct of the men of that Regiment when it mutinied, the Governor General says that "from the moment when the main facts of the outbreak were established, it was clear that no penalty short of disbandment would meet the case. Additional guilt might possibly, by closer enquiry, be fixed upon individuals as instigators or ring-leaders, and to these additional punishment might be found to be due; but the open refusal of the whole Regiment to obey orders, the seizure of arms with violence, and a tumultuous but combined resistance of the authority of its officers with arms loaded, is an offence for which any punishment less than dismissal from the service of the State would be inadequate: mutiny so open and defiant cannot be excused by any sensitiveness of religion or caste, by fear of coercion, or by the seductions and deceptions of others. It must be met promptly and unhesitatingly, and without the delay of a day more than may be necessary. Accordingly, it has been resolved by the Governor General in Council, that the 19th Regiment shall be disbanded immediately, and that the disbandment shall take place at Barrackpore. In accordance with this resolution, the Regiment was ordered down to Barrackpore, where, on the 31st ultimo it was disbanded. The men were disarmed, paid up and marched to Pulta Ghaut. Major General Harsey carried into effect this resolution of the Government, and is praised for the admirable manner in which he performed this most difficult and trying task entrusted to him." And the Governor General hopes, that the "severe measures, which he has been compelled to adopt will have the effect of convincing the Native Troops, that they will only bring ruin on themselves by failing in their duty to the State and in obedience to their officers." A General Order containing the decision of the Governor General upon the offence which the 19th Regiment had committed, and its disbandment in consequence, was issued and read to that corps and the other troops on parade on that occasion.

On the same day, the 8th April, the Governor General in Council further reports that on the 29th March, Mungul Pandey, a sepoy of the 34th Regiment N. I. at Barrackpore having armed himself with a sword, and loaded musket, fired at Lieutenant Baugh, the Adjutant of the corps, and shot his horse. Lieutenant Baugh fired his pistol and missed the man, who then attacked the officer with his sword, and wounded him in the hand. The Sergeant Major of the corps who went to Lieutenant Baugh's assistance, was also wounded by the sepoy. Major General Hearsey arrested the man himself; and in submitting the proceedings of a Court of Enquiry reported his own part in the transaction. He was warned on the afternoon of the 29th March, by one of his Orderlies that the sepoys were turning out on their parade. He immediately rode with his two sons to the parade, and found the mutineer walking up and down. He ordered the Guard to arrest him, which they delayed doing. He then rode towards the mutineer followed by the Guard. Mungul Pandey fired, and the Guard hearing the whistle of the bullet bent to avoid it. The mutineer then fired at himself, and fell with a superficial wound and his clothes on fire. He was secured and sent to Hospital. On the 9th April evidence was taken as to the conduct of Shaik Pultoo, a sepoy of the 34th N. I. who assisted in saving Lieutenant Baugh's life, was made a Havildar on the spot, and recommended for the order of merit. His statement contains the facts. "The sepoy Mungul Pandey, about 4 o'clock P. M. in the afternoon of the 29th March, was straggling backwards and forwards in front of the quarter guard armed with a musket and sword, he had on his red jacket and regimental cap, endeavouring to excite the men of the Regiment to mutiny; some one told the Sergeant Major of this, and he came towards the quarter guard, asking the Jemadar of that guard where Mungul Pandey was, and why he did not confine him. Mungul Pandey then fired at the Sergeant Major, but missed him; he reloaded; the Sergeant Major, being alarmed, ran into the quarter guard, and asked the Jemadar why he did not arrest Mungul Pandey who had reloaded his musket, and told him to send and let the Adjutant know what had occurred on the parade ground. Shortly after this the Adjutant, on horse back, arrived, and asked the Jemadar where the sepoy with the arms was, and why he had not secured him; the Jemadar gave no reply, but I pointed him out. Mungul Pandey was then standing in front of the quarter guard. Just as I spoke he fired at the Adjutant, and wounded his horse. The Adjutant then pulled out a pistol and said, "that man will kill me, he is loading again." I said, "you will not be allowed to be killed, for I am with you." The Adjutant then, with pistol in

his hand rushed towards Mungul Pandy, who, on seeing this did not finish loading his musket, and commenced retreating. The Sergeant Major and I followed the Adjutant as quick as we could. The Adjutant, when within twenty paces, fired at Mungul Pandy, but missed him; when the Adjutant reached him, Mungul Pandy drew his sword and wounded him severely. By this time the Sergeant Major came up, he also was wounded severely. I then came up, and stretched out my hand to stop Mungul Pandy, who was following the Adjutant, and said to him, "Take care, do not strike the Adjutant." He aimed a blow at the Adjutant's neck, which I received on my right hand; I then seized him round with my left arm; the Adjutant and Sergeant Major then got away. I then called out to the Quarter Guard to come and make Mungul Pandy a prisoner, and told the Jemadar Issurie Pandy, who commanded the Guard to send four men, and take him; that I had hold of him and would not allow him to hurt any one; they did not come, but abused me as also did the Jemadar, and said that if I did not let Mungul Pandy go they would shoot me. Being wounded, I was obliged to let him go. While I was holding Mungul Pandy, several men of the Quarter Guard followed the Adjutant and Sergeant Major, beating them with the butt-ends of their muskets."

On the 6th April the Native General Court Martial assembled for the trial of Mungul Pandy. Fourteen native officers besides the President was present. The evidence given at the trial confirmed Shaik Pultoo's story, with the addition that the accused was a man of good character. Fourteen officers found him guilty and eleven voted death. He was executed on the 8th April.

Major General Hearsey on the 6th April, in forwarding a Divisional Order issued by him, notifying the promotion of Shaik Pultoo to be Havildar, recommended that the order of merit be bestowed on him, and that the energetic and gallant conduct of Lieutenant Baugh and Sergeant Hewson be noticed in General Orders. The Governor General, on the 10th April, remarks that it is not in the power of the Major General commanding the Division to make the promotion, which can proceed only from the Government of India, and therefore should not have appeared in a Divisional Order without the sanction of Government. But as the promotion has been announced and the distinction is richly deserved by Shaik Pultoo it is confirmed. The recommendation of Shaik Pultoo for the order of merit will come before the Government in the ordinary way through the Commander-in-Chief. The proposal to publish a General Order on Lieutenant Baugh and Sergeant Major

Hewson is rejected. The Governor General in Council greatly admires the determination and courage shown by those officers, but thinks it undesirable that the sepoys should be led to think the achievement extraordinary, or that the affair should be paraded at all.

On the 14th April Government with reference to trials then going on at Barrackpore, requested the Commander-in-Chief to empower General Hearsey to confirm all sentences on native commissioned officers. On the 16th April, the Commander-in-Chief replies that he has not the power (vide Act 7th, Vic. Chap. 18.) On the 18th April Government reply the Commander-in-Chief has power under 73rd Article of War; and on the 20th April, the Commander-in-Chief confirmed the sentence passed on Issuree Pandey, Jemadar, 34th Regiment, and a warrant was despatched authorizing the General to confirm such sentences. This man was tried on the 10th April for having, at Barrackpore on the 29th March, 1857, "he being then in command of the quarter-guard of his Regiment, not used his utmost or any endeavours to suppress a mutiny begun by Mungul Pandey, sepoy of the Regiment, the said sepoy having on the afternoon of that day, gone out into the parade ground in front of and near to the quarter-guard of the Regiment armed with a sword and musket, and then and there used words to excite the men of the Regiment to come forth and join him in resistance to lawful authority; and having then and there on the parade-ground and near to the quarter-guard of the Regiment, discharged his loaded musket at Sergeant Major James Thornton Hewson and Lieutenant Bempde Henry Baugh of the 34th Regt. N. I., and then and there, with a sword, struck and severely wounded them, and to the said Jemadar not having taken any measure to arrest and confine the said sepoy throughout the aforesaid occurrences, nor to assist the said Lieutenant Baugh and Sergeant Major Hewson, and he the said Jemadar, having moreover, then and there, discouraged and interfered to prevent any sepoys of his guard from going to their assistance, and for disobedience of the lawful command of his superior officers, in not having advanced with his guard to rescue the Sergeant and capture the aforesaid sepoy, Mungul Pandey, when, shortly after the occurrences set forth in the first charge, he was ordered to do so by Brevet Colonel S. G. Wheeler, Commanding the 34th Regt. N. I." It was proved in evidence reported at length that the Jemadar though commanded to assist in arresting Mungul Pandey did not, and refused to allow three sepoys who wished to go to move. He was found guilty, twelve officers out of fourteen voting for death. He was executed on the 21st April.

In a subsequent Court of Enquiry held on the 17th April with closed doors it was stated by Durriou Singh, Jemadar, 34th N. I. that on the 26th of January, there was a halt of the three Companies which went to Chittagong at Calcutta near the fort. Subadar Major Ramlall of his Regiment was on guard at the Lieutenant Governor's at Allipore. On that day the Guard was renewed and returned to Barrackpore. The Subadar Major Ramlall, and Subadar Muddeh Khan and Subadar Lalla Gopal and Jamadar Lalla Gunness, sent for the Moonshee of the Regiment, and had a letter written and sent off to Rajah Maun Sing. Ramlall Subadar Major, came to Durriou Singh's guard, which was at the Treasury, on the day that the guards were relieved. He arrived about 10 o'clock, and remained till 12, talking in a treasonable manner, loud enough for all the men to hear, telling them what they were to do, and that he was going off to Barrackpore and could not remain there to conduct matters. The treasonable matters talked about were the cartridges and a refusal to serve any longer. The plan was with the four Regiments and three Companies going to Chittagong, to seize the fort. The King of Oude was to assist, as also the Calcutta Militia, and the sepoy's pay was to be raised to 10 Rupees a month. On the 15th April, a special Court of Enquiry was assembled at Barrackpore to receive the evidence of the European officers as to the state of feeling in the 34th N. I.

Brevet Colonel S. G. Wheeler deposed—Regarding the seven Companies at Regimental Head Quarters, he was of opinion that since the latter end of January last, the men have been more or less in an excited state on account of the new rifle cartridges, and they have shown this feeling both secretly and openly on some occasions. In the latter end of January several Bungalows were burnt down, amongst others the Electric Telegraph Bungalow. A general parade took place on the 9th February, when the subject of the cartridge paper was explained to the men by the General. That explanation seemed to quiet the men a good deal for the time. From all that has occurred, he was of opinion that it was the intention of the Regiment to coerce and resist the Government, and that the feeling in the Regiment was decidedly bad; but that now the men appeared to be very much frightened. His distrust extended only to Hindoos.

Captain W. W. Aubert, 34th N. I., deposed that between May last year, (when he returned from Furlough,) and the date of his entering upon his appointment at Barrackpore, he observed a great want of respect on the part of the men towards their European officers. For instance, he frequently noticed, when he went to the lines on duty and in uniform, that the

men did not stand up and salute him ; a mark of disrespect for which he punished the men of his own Company, and reported those of other Companies. Again when the Regiment was coming down by water in October and November last year, it encountered a severe gale in which three boats were wrecked, but not a single sepoy came forward voluntarily to assist the European officers in getting their boats out of danger. His distrust extended only to Brahmins.

Ensign F. E. A. Chamier, Interpreter and Quarter Master, deposed that the native officers and men were generally disrespectful towards their European officers. He would not trust the Hindoos.

Captain C. C. Drury deposed that with the exception of a few men, the general feeling of the Regiment was very good indeed. Had found sepoys less respectful, but believed it arose from the lax state of discipline.

Lieut. A. C. Bunbury thought the feeling of the Regiment good. The Court were of opinion that the Sikhs and Mussulmans were trustworthy, but not the Hindoos. On 17th April the Court re-assembled, and Lieut. and Adjutant B. H. Baugh deposed that he did not exactly know what might be the present feeling of the native officers and men of the Regiment, but their conduct hitherto had caused him to distrust them. About two months ago, the men were ordered to be paraded in their Hindoostanee clothes, in order that the new cartridges might be shown to them ; their conduct on that occasion was most unruly and insubordinate. Moreover their conduct at the time of the attack on him was such that he had no hesitation in stating his conviction that all of them were cognizant of what was going to take place, fully prepared for what did take place, and all more or less implicated. On questioning some of the men a day or two afterwards as to where they were on the occasion referred to futile and confused answers were returned. He would rely on the Mussulmans and Sikhs. Noticed a change in the regiment from the time of the formation of Rifle Depots.

Lieut. and Brevet Capt. A. S. Allen believed that the Regiment had shewn no symptoms of disloyalty as sepoys, had tried to save him on the 29th March, and one man revealed a combination of all the Regiments at Barrackpore. Would have as much confidence in the 34th Native Infantry as in any native Regiment.

Lieut. J. T. Liscombe deposed that he considered the Regiment to be in a disaffected state as on going down to the lines on the evening of the 29th March he saw the whole of the men there looking on at the armed mutineer, and not attempting to seize him.

The Court upon the additional evidence before them, adhere to their former opinion.

On the 29th April Major General Hearsey presented to Government a Petition from the three Companies of the 34th Regiment N. I. stationed at Chittagong, expressive of the exceeding abhorrence with which they have viewed the recent disgraceful conduct of some of their comrades at Regimental Head Quarters at Barrackpore, and at the same time begging to assure the Government of their own faithful and loyal feelings towards the State. On the 29th March there were in the 34th Regiment 335 Brahmins, 237 Chuttrees, 231 Hindoos of lower caste, 12 Christians (two of them sepoys) 200 Mussulmans and 74 Sikhs.

On the 30th April the Governor General records his opinion that the Regiment must be disbanded. The disbandment to be so far tempered as that those of all ranks who were manifestly absent from the lines on the 29th of March, shall be exempted from it, as also those who upon that or any other recent occasion have shown attachment, and fidelity to their officers and to the State. But the Governor General sees no possibility of drawing a line of separation between creeds, in the spirit of the decision given by the special Court of Enquiry, and which should have the effect of relieving the Sikhs and Mussulmans who were present, from the punishment to be inflicted upon the Hindoos. It would be impolitic and dangerous to attempt it. Mr. Dorin concurs. General J. Low concurs, and while fearing some good men may be involved in the order, thinks it is in the highest degree important to avoid any act which could be supposed by the Indian community to indicate that Government is more indulgent towards certain classes of men among its native soldiers than it is to any other class on the score of their religion. Mr. Grant concurs deeming the punishment even lenient. Mr. B. Peacock concurs, but would extend the penalty to certain individuals exempted by the Governor General. In subsequent correspondence the exemptions are upheld. On the 4th May, 1857, the Governor General in Council in a General Order recapitulates the facts, and sentences the Regiment with exceptions to disbanding. The sentence was carried out on the 6th May.

On the 3d April the Military Secretary informed Major General Hearsey that Colonel S. G. Wheler, Commanding 34th N. I. had of late held language to the men of his Regiment, indicating that it was his expectation that they would, sooner or later, be converted to Christianity, and that he has lately addressed them on religious subjects, and requested information. In reply Brigadier C. Grant stated that he knew only one occasion on which Col. Wheler had addressed the men, and on that one he said the British Government never interfered with

the religion of its subjects. Lieut. Col. Wheler himself replied that he had not expressed any belief that the sepoys would become Christians, though he much wished it, but with regard to his having addressed the sepoys on religious subjects, he said that during the last twenty years and upwards he had been in the habit of speaking to natives of all classes, sepoys and others, making no distinction; since there is no respect of persons with God, on the subject of our religion, in the highways, cities, bazars, and villages (not in the lines and regimental bazars). He has done this from a conviction that every converted Christian is expected or rather commanded by the Scriptures to make known the glad tidings of salvation to his lost fellow creatures, our Saviour having offered himself up as a sacrifice for the sins of the whole world, by which alone salvation can be secured. He has directed that this salvation should be freely offered to all, without exception.

On the 13th April, Government request further information, particularly as to the point whether Colonel Wheler had spoken of religion to the men of his own Regiment. In reply Colonel Wheler observes that it has been his invariable plan to act on the broad line which Scripture enforces, that is, to speak without reserve to every person; and therefore whenever he addresses natives on this subject, whether individually or collectively, it had been no question with him as to whether the person or persons he addressed belong to this or that Regiment, or whether he is a shopkeeper, merchant, or otherwise, but speak to all alike, as sinners in the sight of God; and he has no doubt that he has often, in this way (indeed, is quite certain) addressed sepoys of his own Regiment, as also of other Regiments at this and other stations where he has been quartered.

On the 9th April, the Governor General records his opinion that Colonel Wheler's conduct on the 29th March, demands investigation. His Lordship adds that Colonel Wheler's answers to enquiries directed to him about his religious teaching are not satisfactory, but he does not propose to submit this part of his conduct to Military investigation. The Members of Council agree with His Lordship.

On the 29th March, Colonel Burney reports that the men of the 63rd N. I. stationed at Soorie object to receive their furlough, alleging that the men of the Barrackpore regiments do not intend to take theirs. Two men from Barrackpore had come up by train via Raneegeunge to Soorie with a written communication. Previous to this the men agreed to take furlough. The men immediately after returned to a sense of their duty. Major General Hearsey recommends that the fourteen men conspicuous for this refusal should be dismissed the service. On

the 6th April the Governor General observes that he cannot concur in the recommendation of Major General Hearsey, as the offence was accompanied by exterminating circumstances and followed by their return to duty. The men belonged to a Regiment which had resisted all overtures to shake their fidelity, and it was therefore sound policy to pass over the offence with a warning. The Members of Council concurred, Major General Low remarking that on any future occasion any sepoy who took a prominent part in such a proceeding should be summarily dismissed.

On the 2nd April Colonel Keith Young forwards to the Government of India proceedings at a Native General Court Martial held at Fort William on Boodheelall Tewarry and Bahadoor Singh, sepoy of the 2d N. I. Grenadiers for having when on duty on the Town Major's Guard at Fort William, at or about 10 o'clock on the night of the 10th of March, 1857, quitted their guard without being regularly relieved and without leave, and not returned until brought back as prisoners on the following morning. "2nd. For mutiny in having during the absence from the guard, as set forth in the first charge, at about half past 10 o'clock at night, together gone to the Mint Guard in Calcutta, and then and there endeavoured to induce Soobadar Muddeh Khan, then Commanding the Mint Guard, to quit his post, and march on that night with his guard into Fort William, for the purpose of joining in an intended mutiny or concealed combination against the State." Subadar Muddeh Khan, Mussalman, affirmed that on the 10th March while in command of the Mint Guard at about the time of half past 10 o'clock at night, he was sitting on my charpoy, reading. "These two sepoys who are now prisoners before this Court (witness pointing to them both) came up to me. I said to them, where do you come from and who are you? The sepoy who is on the left (pointing to the prisoner Boodheelall Tewarry) said, I have come from the Fort and from the men off duty on the Reserve Guard. I said, well. The sepoy, the one who was speaking, said, At 12 o'clock the Calcutta Militia is coming into the fort, and do you also bring the Mint Guard at that time into the fort, the Governor General is going up to Barrackpore at 10 o'clock, and after taking possession of the magazine there will be some fighting. I was angry and told him to be silent, saying, Hold your tongue, you rascal! how can you say such improper things? I said, get out of this. They went to the door of the guard room and again stopped. I called out for the Naick of the guard, Allahoodeen, and told him to place them in confinement and place an extra sentry over them. I gave orders that no one should be allowed to come near to them, or speak to them.

They remained all night in confinement, and next morning I sent them off with a Naick and four, with the Havildar, who goes to make the daily report to the Town Major. This is what happened. When they were being taken off the guard they both joined their hands and begged to be pardoned. I said, I have no power. I cannot pardon such an act."

The evidence supported this statement, and the Court sentenced the prisoners to fourteen years' imprisonment with hard labour. The sentence was approved and confirmed by the Commander-in-Chief. General Anson however records on 1st April an opinion that death is the appropriate punishment for such an offence, but that to some even fourteen years of disgraceful labour may be worse than death. He also promises to reward the Subadar who arrested the men.

On the 19th May the Governor General in Council reports to the Court of Directors the alarming events at Meerut and Delhi, and recommends that the six revolted Regiments be replaced by three Regiments of Europeans. Those events and the recent disclosures of bad feeling in the native army shew that the proportion of Europeans has been reduced too low. It is at present in the Bengal army as 1 to 24½, while in the Bombay army it is as 1 to 9½ and in the Madras army as 1 to 16½. If the proposed measure is adopted, the proportion in the Bengal army will be between those in the Bombay and Madras armies, viz., 1 to 11½. The financial result of the change would be:—

Cost of two Native Infantry Regiments, each of 1,160 native officers and men and two Colonels, ...	Rs. 5,44,336	8
Cost of an European Regiment of 927 rank and file, one Colonel, ...	5,30,985	6

Cost of European, less by the above, supposing every officer and man to be with his Regiment, 13,351 2

Further reductions might be made by allowing only one Colonel, one Lieutenant Colonel, one Surgeon, one Adjutant and one Quarter Master. On the same day a narrative was enclosed stating that some eighty-five men of the 3d Light Cavalry who had been tried by a Court Martial, for refusing to use their cartridges, the old sort, as none of the new kind had been issued, were sentenced to imprisonment, and sent to Jail on the 9th May. On the 10th, the troopers of the Regiment broke into the Jail, and released these men. Nothing is known of the further proceedings at Meerut, but that some 100 men of the 3d Cavalry left the station, and took possession of the Hindun Bridge; telegraphic communication between Delhi

and Agra, and between Meerut and Allyghur, was interrupted ; a sepoy arrived, and a Cavalry trooper was apprehended at Bolundshuhur on the 11th. At Allyghur all appeared quiet ; strong bodies of police were placed on the road to Meerut, to intercept all straggling sepoys and sowars. The mutineers from Meerut appear to have proceeded to Delhi, and on being joined by the native troops at that place headed by the 38th Regt. N. I., took possession of the palace, fort and town. On the 13th, five sepoys of the 11th and 20th Native Infantry were apprehended at Allyghur. These men had left Meerut and were sent to Jail. Mr. Carter, a Railway Engineer reached Allyghur, having fled from Puloa (probably Purlwal), twenty-seven miles from Delhi, on the road to Muttra. He reported that a large body of insurgents had marched from Delhi towards Agra via Ballaghur (probably Bullumghur, near Pulwal), where Mr. Roods, the Portrait Painter is said to have been killed

In a message dated the 14th, the Lieut. Governor said that he had received authentic intelligence from the King of Delhi that the town and fort, and his own person, were in the hands of the insurgent regiments, which joined about 100 of the Meerut troops, and opened the gates. The treasury and fort at Meerut were safe on the 12th, and the troops ready to move. Mr. Colvin states that he had addressed the native troops at Agra. A deep and genuine conviction has seized the minds of the sepoys of the army generally, that the Government is steadily bent upon making them lose caste by handling impure things. Mr. Colvin urges the desirableness of issuing a proclamation to the army, pointing out that Government would in every way respect and protect their religious feelings and usages of religion and caste. On the 15th Mr. Colvin recommends that Martial Law should be proclaimed in the Meerut district, the force there being strong and fully prepared to carry out the measure ; this was authorized at once. The Maharajah Scindiah had offered his own body guard and a battery of artillery. In addition, a regiment of Cavalry, and a battery of the Contingent, were to go to Agra, and two regiments of Infantry to occupy the road between Delhi and Agra. The mutineers from Meerut appear to have reached Delhi on Monday night, the 11th or Tuesday, the 12th ; the Delhi troops, headed by the 3rd Light Infantry, fraternized with them, shot their officers, and put to death all the Europeans, with the exception of a few who escaped across the Jumna. Lieutenant Willoughby, the Commissary of Ordnance, blew up the magazine ; the powder magazine, which is near the native lines, alone fell into the hands of the insurgents. Thirty Europeans are said to have been massacred in the city and civil lines. The rebels declared the heir apparent

King ; they are apparently organizing a plan of regular Government ; they remain in the place ; their policy is supposed to be to annex the adjoining districts to their newly founded kingdom ; they may have received fifty lakhs of Rupees. The Regiments that have joined are the 11th, 20th (Meerut Regiments) 38th, 54th and 74th (the Delhi Garrison.) The Lieutenant Governor has received aid from Gwalior and Bhurtpore. The Bhurtpore troops and Gwalior Contingent are to arrive at Muttra in a day or two to keep open the road. A message from Meerut reports the arrival of the Sappers and Miners from Roorkee. The Sirmoor Battalion (Goorkhas) has marched from Deyrah, and the 75th Foot and 1st European Regiments from the Hills. The European Infantry and Artillery Barracks form a place of safety for women and stores, guarded by European troops. The Sirmoor Battalion reached Meerut on the evening of the 16th. There is excitement at Cawnpore, Allahabad and Benares. Full power is given to Sir Henry Lawrence to raise Irregulars. Intelligence received of the Sappers at Meerut having mutinied on the 16th, shot their officers and proceeded to Delhi. They were followed, and about fifty were cut up, the men dispersing. At Lucknow all was prepared on the 17th, the troops having concentrated so as to protect the treasury and magazine. The Lieutenant Governor and Commander-in-Chief have been warned of the importance of attacking Delhi at once. All is quiet at Agra. The Syuds and Jats are entering the field on our side. A wing of the Bengal Seikh Police Battalion has been ordered to Dinapore. The powers of officers commanding troops to assemble General Courts Martial have been extended. Sir Henry Lawrence has been created Brigadier General with full military power in Oude.

A proclamation has been issued assuring the native troops and the people that Government never have and never will interfere with their religious observances or creed. A General Order has also been issued, authorizing the Commander-in-Chief, the Lieutenant Governors, Chief Commissioners, Major Generals, Brigadiers and Officers Commanding Stations at which there may be two or more corps, to promote any non-commissioned officer to a commission, and sepoys to non-commissioned officers for any conspicuous acts of loyalty and gallantry, and the Commander-in-Chief and Lieutenant Governor and Chief Commissioner are authorized to admit native officers and soldiers to the order of merit. Enclosed are telegraphic messages on which the narrative is founded, and the Act VIII. of 1857 for increasing the powers of officers Commanding Divisions and Stations for the trial and punishment of officers against the Articles of War for the native army. The most remarkable message is the follow-

ing which contains most of the facts relating to the demand for reinforcements in a few words.

The Governor General to the Lieutenant Governor, Agra, "send word as quickly as possible to Sir John Lawrence, that he is to send down such of the Punjab Regiments and European Regiments as he can safely spare.

Every exertion must be made to regain Delhi, every hour is of importance. If you find it necessary you may apply to the Rajah of Puttialla, or to the Rajah of Jheend, for troops. I am glad you accepted Scindia's. I have sent for an European Regiment from Madras and from Pegu, but they cannot be here for a fortnight, and until then I cannot spare a single European from here. Peace is ratified, but the troops from Persia cannot be here for many weeks, send on the following message to the Commander-in-Chief.

The Madras Fusiliers left Madras for Calcutta on Sunday. The *Oriental* has been despatched to bring up the 35th from Moulmein. An officer goes to Ceylon by to-morrow's mail, to bring European troops from there. A European Regiment has been ordered from Kurrachee by steam to Mooltan, and will be brought up from there in boats. Two European Regiments and some Artillery will come round to Calcutta from Bombay, where they are expected immediately from Persia. I hope to catch the Regiments which are on their way to China. But time is every thing, and I beg you to make short work of Delhi."

On the 4th May Sir Henry Lawrence, Chief Commissioner of Oude reports that on the 2nd May the 7th Oude Regiment refused to bite the cartridges when ordered by its own officers, and again by the Brigadier. It was ordered to parade on the 4th. On the 3rd symptoms of disaffection appeared and in the afternoon it was in a very mutinous state. A force consisting of a field battery, a wing of H. M.'s 32d, one of the 48th and 71st N. I. and of 7th Cavalry, the 2nd Oude Cavalry and 4th Oude Infantry marched against it. The Regiment was found perfectly quiet and expressed contrition; but on seeing the guns drawn up half their body fled throwing down their arms. The Cavalry pursued and brought up some of them. The Regiment was then disarmed, and was told that Government would be asked to disband the corps; but that those found guiltless might be re-enlisted. On the 10th May the Governor General records his opinion that Sir Henry Lawrence should be supported, but that the Regiment should be finally disbanded. Mr. Dorin is of opinion that a severe punishment is necessary to check the epidemic of mutiny. Mr. Grant believes it expedient to wait for further information. General Low would select a few of the most guilty for trial, as would Mr. Peacock.

The following order was dispatched on the 13th May to Lucknow: Sir Henry Lawrence is informed that the Governor General in Council approves of the prompt measures adopted by him in regard to the 7th Oude Regiment: but His Lordship is of opinion, that the disbandment to whatever length it may be carried should be real, and that the men whose innocence can be shown, and whose general character is irreproachable, or those by whom offenders have been denounced, and mutinous designs disclosed, should be retained in the ranks, the others being dismissed absolutely and finally, as there is a fiction in discharging soldiers one day to take them back the next, whatever may be their claims to mercy, which would greatly weaken the general effect of the measure of disbandment as an example. The extent to which such a measure should be carried, and the nature of further punishment in individual cases, will be considered when Government is informed of all the circumstances attendant upon the occurrences of the 4th May; and the Governor General in Council feels it necessary that he should fully understand how the refusal on the 2nd May to bite the cartridges was manifested; what passed previously on the subject, and what were the circumstances which led to the refusal; how the symptoms of disaffection, shown on the 3rd May appeared; whether in such a manner as to implicate the whole Regiment or a portion only; and if the latter how many individuals. Explanation was also necessary as to the Regiment being reported to be in a state of mutiny on the 4th, for on the same evening it was found perfectly quiet and expressed contrition. Sir Henry Lawrence was also desired to state whether subsequently the circumstance of the Regiment breaking and throwing down its arms formed a part of his grounds for disarming it, and whether the panic was attributable to any movements accidental or otherwise, threatening or seeming to threaten, the opening of fire. If these points are not embraced in the enquiry stated in Sir Henry's Telegram of the 12th to have been already made, he is requested to make a further investigation into the subject, including the conduct of the European officers of the Regiment prior to and during the occurrences in question. A book recently published by order of Government on the practice with Rifles, in which it is directed that the cartridges should be torn open, and no allusion is made to the old practice of biting it, was despatched to the Regiments of Oude Local Infantry on the 4th April; Sir Henry was directed to state when that work was received by the corps at Lucknow.

On the 17th May in a Telegram Sir Henry states that the case being emergent he has disposed of the 7th Regiment of

Oude, by dismissing 15 sepoy, and with one or two exceptions, the native officers, the rest forgiven. Their Commanding Officer has returned from the Hills, places implicit trust in them. 200 men only will be armed until receipt of orders.

On the 3d June the Governor General forwards to the Court of Directors the proceedings of a Native General Court Martial on the trial of Salickram Sing, Jemadar, 70th Native Infantry. He was tried on the following charges :—First charge. In having begun a mutiny, and excited others to join in a mutiny in the Regiment to which he belongs, in the following instances :—1st. In having at Barrackpore, on the evening of the 5th March, 1857, in presence of Issuree Sing, Havildar of the Light Company, addressed Jemadar Sewbuccus Sing, of the Light Company 70th Regiment Native Infantry, in words to the following effect :—"My only hope is in you ; what do you say ? the sepoy may bite the new cartridges if they like, but I will not bite them ;" thereby endeavouring to persuade the said Jemadar and Havildar to combine with him in resistance to lawful authority. 2nd. In having at Barrackpore, on the evening of the same day, endeavoured to persuade the men of his Company to disobey the order they had received to thatch their huts without delay ; informing them that they need be no hurry in thatching their huts, as there would shortly be a disturbance, thereby inciting the men to resist authority. 3rd. In having, at Barrackpore, on the evening of the 8th March, 1857, had a meeting of non-commissioned officers and sepoy of his Regiment at his hut in the lines of the 1st Company 70th Regiment Native Infantry, in breach of the standing orders of the army and of the Regiment. Second charge. For conduct unbecoming an officer, in having made no report to his Commanding Officer of any intended disturbance, although he informed the men that a disturbance was intended, as set forth in the second instance of the first charge.

The Court convict him of mutiny and sentenced him to be dismissed from the service. The Commander-in-Chief concurs in the verdict, but considers mere dismissal from the service a very inadequate punishment for the crime of mutiny, and sends back the proceedings for revision of the sentence. The Court reassemble, and adhere to their original sentence.

On the 3rd June the Governor General forwards to the Court of Directors the proceedings of an European Court of Enquiry into the conduct of Lieutenant Colonel Mitchell, Commanding the 19th Native Infantry in connection with the occurrences which led to the disbandment of that corps. With these proceedings were also sent a series of correspondence, and the proceedings of a Court of Enquiry at Berhampore relating to the circum-

stances before and subsequent to the outbreak of that Regiment. The sentiments of the Governor General and the facts elicited at the Enquiry are recorded in the following Minute by His Lordship, concurred in by the Members of the Council : — “ A careful perusal of these papers, satisfies me that Lieutenant Colonel Mitchell in dealing with the outbreak of the 19th Regiment N. I. on the 26th February, did not shew the temper and firmness which is required of a Commanding Officer in such circumstances. I cannot doubt that, during the first part of the proceedings, Lieutenant Colonel Mitchell was, as some witnesses have testified, very angry. The inconsiderate threat, that if the men did not receive the cartridges he would take them to Burmah or China, where they would die, which is not denied by Lieutenant Colonel Mitchell, could not have proceeded from an officer speaking advisedly on a matter in which calmness and self possession were urgently needed. But it is especially in the time and manner of withdrawing the Artillery and Cavalry, which he had brought upon the ground for the purpose of compelling to obedience the Regiment which had then taken arms, that Lieutenant Colonel Mitchell's gravest error of a want of firmness consists. The evidence upon this point varies somewhat, but not materially. Lieutenant MacAndrew, Adjutant of the Regiment thinks, that the submission of the sepoys in lodging their arms was simultaneous with the withdrawal of the Artillery. Captain MacDougall did not see any men lodge their arms, fifty men of his own Company agreed to do so, but they did nothing more than sit down with their arms in their hands. Captain Manning did not see the arms lodged by the few men of his Company who had them. Captain Newhouse says that the arms were not lodged until after he saw the torches which accompanied the Artillery move off the ground. Lieutenant Colonel Mitchell's statement is, that he made no compromise with the men, and that before he ordered the guns and cavalry off, the native officers declared to him that some of the Companies had lodged their arms, and that the rest were doing so. It is no doubt true that there was no arranged bargain between Lieutenant Colonel Mitchell and his men ; but whereas it was his duty to listen to no proposals, and to accept no assurances, until he had satisfied himself, through his European officers, that every musket in the ranks was laid down, he did yield to representations made on behalf of a Regiment in mutiny with arms in its hands, and he did so in order to obtain from them that which he ought to have exacted as an act of obedience. It is impossible not to view the mode in which Lieutenant Colonel Mitchell withdrew the coercing force as a triumph to the mutinous sepoys. After what has passed in this matter,

I submit that the Government cannot feel that confidence in Lieutenant Colonel Mitchell's judgment and firmness which it ought to be able to repose in every officer commanding a Regiment, and I propose that the Commander-in-Chief be requested to appoint some other officer to raise and command the corps which will take the place of the disbanded 19th Regiment, and to find such other employment for Lieutenant Mitchell as His Excellency may deem suitable."

On the 5th June, the Governor General in Council in forwarding to the Court of Directors a continuation of the narrative sent on the 18th May, and a report from the Lieutenant Governor, North West Provinces, of the events which occurred there up to 22nd May, observes, that the tidings now sent are not without an admixture of hopeful intelligence, and that His Lordship confidently hopes that by the next mail he will be able to report that signal retribution has been inflicted on the mutineers and rebels at Delhi, and that the immediate result has been a perceptible tendency in all the districts to return, at no distant period, to quiet and good order. The Governor General also reports the death of General Anson, and the instructions sent to General Sir H. Barnard to assume command of the force proceeding against Delhi, and warning him of the necessity of attacking the insurgents as early as possible; the continuance of order and quiet, already much imperilled by excitement at the most important stations of Allahabad, Cawnpore, Lucknow and Agra, and in the adjoining districts, being dependent on the early and signal discomfiture of the rebels in arms at Delhi, and in its neighbourhood. The Governor General further informs the Court that, although Major General Reed, C. B. Commanding the Peshawur Division, by right of seniority, becomes Provincial Commander-in-Chief, His Lordship has, considering the emergency of existing circumstances, and the absolute necessity of having at the head of the army some officer of pre-eminent qualifications in point of knowledge of native troops and Indian experience, requested Lieutenant General Sir Patrick Grant to come to Calcutta, and assume command, temporarily, of the Bengal Army.

NARRATIVE OF EVENTS.

Allahabad, May 19th.—Every precaution taken to secure the fort and cantonments. Troops quiet and well behaved, 160 of the Oude Cavalry had arrived from Pertaubghur. City quiet and no fear of disturbance unless something occurs. *Feu de joie* prohibited on Her Majesty's Birth-day.—*23rd.*—70 artillery invalids arrived from Chunar and placed in the fort in which there are also 400 Sikhs of the Regiment of Ferozepore. On the recommendation of the Magistrate ladies and children are permitted to enter

the fort for safety. Two men, one apparently a discharged sepoy, were apprehended by some men of the 6th Native Infantry in their lines, trying to tamper with the sepoys. The men were imprisoned, and refused to give any account of themselves. The sepoys, who apprehended them, were immediately promoted. The 6th Regiment Native Infantry volunteered to be led against the insurgents at Delhi. The thanks of the Governor General were conveyed to the corps; and a General Order issued on the subject. All remains quiet; and the European troops are being pushed through to Cawnpore. 500 Irregulars authorized to be raised, the studs to supply undersized horses.

Agra.—(Taken from the Lieutenant Governor's report.) "There has been a great deal of excitement here. A parade of troops was ordered on the 13th, and the Lieutenant Governor spoke to them plainly and fully on the subject of the gross delusions that have so widely prevailed regarding the intention of the Government, to meddle with their religious feelings or habits. An offer was made that any of them may take their discharge, if they were not satisfied with the explanation and assurances just given. They all expressed their belief in the Lieutenant Governor's communications to them. They have undoubtedly been infected by a deep distrust of our purposes. Measures have been taken to strengthen the fort and to place in it some considerable amount of supplies. The European force is not to go into it excepting in the very last extremity. Portions of the Gwalior Contingent have been pushed forward to Agra as a reinforcement. The Grenadier Regiment of that force will occupy the station of Etawa on the 25th instant. The Maharaja insists on sending to Agra the whole of his body guard, a force more showy than useful; but calculated to have a calming effect on the public mind. The Electric Telegraph has been of the most invaluable use during the whole of this excited period." Two Companies of a Regiment at Agra having mutinied at Muttra, it was considered expedient to disarm the 44th and 67th Regiments on the 31st. The Lieutenant Governor in a Telegram of the 24th May states: "on the mode of dealing with the mutineers, I would strenuously oppose general severity towards all. Such a course would, as we are unanimously convinced by a knowledge of the feeling of the people, acquired amongst them from a variety of sources, estrange the remainder of the army. Hope, I am firmly convinced, should be held out to all those who were not ringleaders or actively concerned in murder and violence. Many are in the rebels' ranks because they could not get away: many certainly thought we were tricking them out of their caste; and this opinion is held, however unwisely, by the mass of the population, and even by

some of the more intelligent classes. Never was delusion more wide or deep. Many of the best soldiers in the army, amongst others of its most faithful section, the Irregular Cavalry, show a marked reluctance to engage in a war against men whom they believe to have been misled on the point of religious honor. A tone of general menace would, I am persuaded, be wrong." On the 25th May the Governor General telegraphs an order that no mercy should be shewn to any man who resists with arms the Commander-in-Chief's force ; any man who has taken part in the murder of an European officer or other person ; any ring-leader. Generally, a distinction should be drawn between the Regiments which murdered their officers and those which did not. To men of the latter, forbearance in the first instance, and hope of pardon, if they should show a claim to it, may be extended. On the 25th May the Lieutenant Governor issued the following proclamation :—"Soldiers engaged in the late disturbances, who are desirous of going to their own homes, and who give up their arms at the nearest Government (civil or Military) post, and retire quietly, shall be permitted to do so unmolested. Many faithful soldiers have been driven into resistance to Government only because they were in the ranks and could not escape from them, and because they really thought their feelings of religion and honor injured by the measures of Government. This feeling was wholly a mistake, but it acted on men's minds. A proclamation of the Governor General now issued is perfectly explicit, and will remove all doubt on these points. Every evil-minded instigator in the disturbance, and those guilty of heinous crimes against private persons, shall be punished. All those who appear in arms against the Government, after this notification is known, shall be treated as open enemies." On the 26th May the proclamation is cancelled by Telegraph. On the 27th May Mr. Colvin earnestly requests that his proclamation may stand. On the 27th May the Governor General reiterates his order. On the 28th May Mr. Colvin reports that to cancel his order is to cripple his authority. On the 29th May an order is transmitted to the Commander-in-Chief, cancelling Mr. Colvin's proclamation, and on the same day the following remarks are communicated to Mr. Colvin by Government. "The proclamation issued by the Lieutenant Governor of the North West Provinces on the 25th instant is open to grave objection. By the 1st Clause ; it allows all soldiers engaged in the late disturbances, who gave up their arms, to go to their homes unmolested." By the 3rd Clause, the operation of the first is limited, in so far as it is declared that "every evil minded instigator in the disturbances and those guilty of heinous crimes against private persons,

shall be punished;" but it is expressly said that only these shall be punished. In the course of these disturbances officers have been killed by their own men, or by the men of other Regiments, and it is known that two Regiments have made themselves especially infamous by such traitorous and murderous acts. It cannot have been intended by the Lieutenant Governor that the sepoys who participated in the murder of officers should escape punishment, yet it is at least doubtful whether under the proclamation they are not entitled to go free, as soon as their arms have been delivered up, and certainly their liberty could not be refused to them unless the term "private person;" crimes against whom are the only crimes denounced, be interpreted as including officers engaged in commanding their men. To stretch interpretations on the side of severity, in a matter affecting the lives of men, is not a right course; and it is especially necessary in the case of a proclamation of pardon, to avoid even the appearance of straining the plain meaning of such a proclamation in order to take lives of any persons who have surrendered upon the faith of it. But furthermore, upon any interpretation of this proclamation, the whole burden of proof that a mutineer has been guilty of the crimes selected for punishment is by this proclamation thrown upon the Government. It is not impossible that Government may be unable to prove one of these punishable crimes against any of those who surrender, and as the officer of Government to whom the sepoy may present himself to deliver up his arms cannot be expected to have any knowledge of the man's conduct, it is difficult to see how there can be any investigation whatever, even in the cases of the men known to belong to the Regiments by which the worst outrages have been committed. No power is reserved to detain a sepoy for the purpose of enquiring into his conduct before conceding to him permission to seek his home unmolested; and though this power might possibly be assumed in the case of individuals against whom suspicion should arise, it would be nothing less than a snare to use it against all the men of a particular regiment without having given notice of the intention to do so. There is then no reason why, with this proclamation in his hand, every sepoy of the 20th or 38th Regiments should not leave Delhi, present himself at the nearest Civil or Military post, and claim of right to go free. In whatever sense the proclamation may be understood by the Lieutenant Governor of the North West Provinces, no action can hereafter be taken under it which shall put the good faith of the Government of India above suspicion except such as would allow of the unimpeded escape of men who have murdered their officers. This would

be a heavy and lasting reproach to the Government of India, and a severe blow to the future discipline of the army. On this account it is unavoidable that the proclamation should be cancelled or superseded with as little delay as possible. But the Lieutenant Governor of the North West Provinces, has earnestly deprecated this course, as one which would weaken his power and discredit his authority. Seeing the difficulties with which the local Government at Agra has to deal, there is force in this appeal. Absolutely to annul an offer of pardon made, however unauthorised, by so high an authority as the Lieutenant Governor of Agra, might have a dangerous effect at this crisis; and in the present aspect of affairs the Governor General in Council does not fail to see the advantages, as tending to hasten the suppression of the rebellion, and the punishment of the more heinous criminals, of the offer of a large measure of mercy to that portion of the mutineers, who, under any circumstances, if they were now to submit, would be leniently dealt with. The number of men who have committed themselves to the rebellion, puts the punishment of all quite out of the question. Moreover, the immediate revocation of the terms on which pardon has been offered, and the substitution, before there had been time to take advantage of such terms, of others less favorable, could not fail to increase the mistrust and fear which has possessed the minds of the sepoys in the North West Provinces who are still in the performance of their duty. It is therefore resolved, that the proclamation of the Lieutenant Governor shall not be set aside until the Commander-in-Chief, now advancing upon Delhi, shall approach the city, when His Excellency will be instructed to issue the following proclamation in the name of the Governor General in Council :—

“PROCLAMATION.

“The Governor General in Council, having reason to believe that amongst the mutineers in Delhi, there are many that have been constrained against their will or deceived into taking part in the proceedings of those around them, proclaims as follows :—Every soldier of a Regiment which, though it has deserted its post, has not committed outrages, will receive a free pardon and permission to proceed his home, if he immediately delivers up his arms to the Civil or Military authority, and if no heinous crime is shown to have been perpetrated by himself personally. This offer of free and unconditional pardon cannot be extended to those Regiments which have killed or wounded their officers, or other persons, or which have been concerned in the commission of cruel outrages. The men of such Regiments must submit themselves unconditionally to the

authority and justice of the Government of India. Any proclamation offering pardon to soldiers engaged in the late disturbances, which may have been issued by the local authorities previously to the promulgation of the present proclamation, will thereupon cease to have effect; but all persons who may have availed themselves of the offers made in such proclamations shall enjoy the benefit thereof. The Governor General in Council cannot conclude his remarks upon this subject without an expression of his regret that the Honorable the Lieutenant Governor should, without necessity for any extreme haste, have taken the step of issuing a proclamation of this grave character, affecting the reputation of Government in every part of India, and the discipline of the Bengal Army, without previous reference to him. The consequences have been very embarrassing. When the proclamation was issued, His Honor had a few hours before received a telegraphic dispatch showing that the general views of the Governor General respecting the treatment of the mutineers were such as to be wholly irreconcilable with the spirit of the Lieutenant Governor's proclamation. Against these views, as being in his opinion too severe for the existing position of affairs, he remonstrated in a telegraphic dispatch, to which in ordinary course His Honor might have expected an answer in a very few hours. The Governor General in Council is unable to concur with the Lieutenant Governor, in thinking that the terms of his proclamation are substantially consistent with the views expressed in that answer, and however that may be, the proclamation was issued without awaiting that answer. It would not have caused a delay of more than twenty-four or thirty-six hours, to have referred the proposed proclamation in terms to the Government of India, to which authority, in ordinary course, the decision of such an important military question belonged; and as the main object of the measure was to work upon the mutineers at Delhi, even if circumstances had been such as to render the delay of a telegraphic reference to the Governor General in Council inadmissible, the Commander-in-Chief, then on his march to that city, was the subordinate authority to whom the responsibility of acting in the matter without the order of Government should naturally have fallen. The point is one of so much importance that His Lordship in Council feels it necessary to explain himself to the Lieutenant Governor thus fully upon it, but he makes every allowance for the great difficulties of His Honor's position, and he is assured that His Honor acted as he judged best for the public interests in a time of danger."

Attock.—Occupied by a wing of 27th Foot; the occupation of that fortress by Europeans being considered of vital importance as securing the passage of the river.

Allyghur, 20th.—The four Companies of the 9th Native Infantry after behaving very well for some time, suddenly rose against their officers, who were compelled to leave them. No European injured. The treasury was plundered, and the prisoners in Jail liberated. The officers and civilians retired to Hattrass, eighty men of the 1st Gwalior Cavalry at Hattrass deserted, supposed to have gone to Delhi. Troops could not be spared from Agra to reoccupy Allyghur; but subsequently some Volunteers, headed by Captain Watson and accompanied by Mr. Cocks, c. s. proceeded to the place, and it is understood are there.

Azimghur.—All contained quiet up to the 26th, when some excitement showed itself, but the men were soon pacified. *5th June.*—A message from Benares reports that Azimghur has fallen. Four officers said to have been killed; names not given. Ladies all safe at Ghazee-pore, where they appear to have been sent. A party of Irregular Cavalry had previously been sent to bring away the treasure from both Azimghur and Goruckpore. It is not known whether the treasure left prior to the mutiny of the 17th Native Infantry.

Barrackpore.—The native troops continue quiet. As a matter of precaution, 400 men of the 84th Foot, were removed to Barrackpore. On the 25th May the native officers and men of the 70th Regiment N. I. on hearing of the dreadful massacres committed at Meerut and Delhi by certain mutinous native Regiments, and having heard also of disaffection said to exist in the ranks of some other corps in the Upper Provinces, petitioned to be allowed to proceed against the mutineers. The Governor General proceeded up to Barrackpore and addressed the men. "Native officers and soldiers of the 70th, your petition reached me yesterday, and I am come to answer it. I have received it with delight; not because I doubted your fidelity, for I know the trust that is reposed in you by your gallant Colonel, I know the high opinion which your brave General, with his long experience of the sepoys of Bengal, entertains of you; and I have myself marked your good and faithful conduct under recent bad example, when many fell away. I therefore felt sure of your loyalty. But your petition gives me pleasure, because it is an open contradiction of the rumour which has gone abroad, that the unfaithfulness of some Regiments, has tainted all within their reach. You have refuted the unjust suspicion nobly. Men of the 70th I will answer your petition. You have asked to be sent to meet the mutineers of Delhi. You shall go. In a few days, as soon as the arrangements can be made for your progress you shall proceed to the North West." The remaining Companies of the 34th Native Infantry subsequently volunteered to proceed

against the mutineers. The thanks of Government were expressed to the corps.

Berhampore.—All quiet.

Bareilly.—The news from this place is obtained entirely from private sources. On the news of the outbreak at Meerut reaching, the troops displayed considerable excitement. The officers, however, pacified their men, and all has continued in a satisfactory state up to the 27th, the date of the last letter. A great want is felt of Irregular Cavalry throughout the Doab and in Rohilcund. Colonel Troup, who was in temporary command of Bareilly, authorized the officer commanding the 8th Irregular Cavalry, to increase his Regiment by 500 men ; this has been sanctioned. One troop was raised in a few days ; and a second troop was nearly ready. The Irregular Cavalry men on leave in Rohilcund and neighbourhood, had been desired to place themselves under the orders of Collectors of districts.

Benares, 19th.—The 13th Irregular Cavalry brought into the station from Sultanpore. *Feu de joie* was prohibited on Her Majesty's Birth-day. Things appear to have been kept quiet by the firm and conciliatory conduct of the Civil and Military authorities. The Head Quarters of the Division is so far removed, the Brigadier Commanding has been vested with authority over the neighbouring stations, which formerly constituted the Benares Division. One hundred of Her Majesty's 10th Foot having arrived from Dinapore, the parties of Europeans who arrived by transit carriages and bullock trains are sent on towards Cawnpore as rapidly as possible.

Bolundshuhur.—The Sirmoor Battalion, 400 men, which had been ordered down by Canal, were detained by damage done to the locks. The Civil officers were obliged to leave the place, but returned on the 25th. Rampore Horse are employed keeping the road clear. *1st June.*—The country between Allyghur and this place being fast quieted.

Cawnpore, 21st.—Strengthened by 50 Europeans and 2 Squadrons of Irregular Cavalry from Lucknow. Considerable excitement among the native troops, particularly in the 2nd Light Cavalry. That corps had sent emissaries into the camps of the three Native Infantry Regiments asking if they would support them in the event of an outrage. *22d.*—Matters took a favorable turn about half past 7 P. M. yesterday. Up to that time it appears that an outbreak was most imminent, guns were placed in position and every preparation made to meet it. The men were, however, quieted by an address to them by their Commandant through some native officers. Two guns and 300 men of all arms brought in by Maharajah of Bittore. *25th.*—Report on what was considered good authority that there would be an outbreak on the

24th or 25th. All preparations made, but nothing occurred. 26th.—All tranquil. The disaffected, discontented by the efficient measures coolly but determinately taken to meet any outbreak that might be attempted, are sobering down. 29th.—Parties of Oude Irregular Cavalry sent out to Goosaigunge and Mynpoorie to keep the road clear and put down plunderers. Reports from Native Agents more cheering and satisfactory. The 50 men of the 32d Foot sent back to Lucknow, 71 of the 84th having arrived 31st.—All quiet. 4th June.—The Telegraph communication between Cawnpore and Agra interrupted. 50 of Her Majesty's 84th Foot sent to Lucknow. The Lucknow mutineers had crossed the Ganges and Mendie Ghaut, *en route* to Delhi. The party of Oude Cavalry sent to Mynpoorie to keep open the communication had mutinied and murdered their officers.

Chunar, 19th.—The fort was occupied by the Infantry of the Invalid Battalion and Veterans residing at the place. There being no room for the whole native guard usually on duty in the fort, three Companies, a portion was sent back to Benares. 20th.—Seventy artillery of the Invalid Battalion despatched to Allahabad.

Delhi.—Little authentic is known of the occurrences in Delhi. The Lieutenant Governor reported on the 22nd May that the retreating native Regiments from Meerut took their way to Delhi, where a few of the troopers first entered the town in straggling parties, harangued the mob and gained over to their cause the wing of the 38th Native Infantry, which was on duty in the town and at the palace. Several Europeans, Civil and Military, and ladies were at once cut down and massacred. The next step then seems to have been to murder all the Europeans in the Civil station, and very few escaped. The 38th, 54th, and 74th Regiments Native Infantry, were at the time at Delhi, with Captain DeTeissier's Horse Field Battery. The 74th Regiment joined without showing much alacrity in the rebel cause, and the Artillery men of the battery were only persuaded to take part with the mutineers when pressed by them in overwhelming numbers, and unable to extricate themselves from their power. A general massacre of all Europeans in and near the Civil and Military station of Delhi took place, but whether this was owing to the savage proceedings of the mutineers or to the truculence of the mob there is not yet the means of knowing. A number of officers were however enabled to escape from the general slaughter, and made their way with much difficulty through the surrounding villages to Meerut, occasionally treated with some kindness, but more frequently with neglect and some violence. Wherever the Goojur population predominated, they

plundered and murdered all parties ruthlessly. A Duffadar of the Gwalior Cavalry Regiment who had passed through Delhi four days previously, had reached Agra on the 29th. He describes the mutineers as robbing whom they please in the city. He says that a Regiment of Infantry, with four guns and some Cavalry, had left the city on the 23d to bring in the Rohtuck treasure. A part of the Meerut force was attacked near Ghazeeodeen Nuggur, by a large body of the insurgents from Delhi with five guns. The insurgents were thoroughly beaten, and dispersed with much loss; and the five guns, with ammunition and a great quantity of intrenching tools were taken from them. This victory, the Governor General in his letter to the Court of Directors forwarding the present narrative, says, will be of great value in proving to the mutineers and to the whole army, the prowess of the European troops, even in comparatively small bodies, and its occurrence just now is still more important, when, owing to difficulty in procuring sufficient carriage, and in moving the siege train which the Commander-in-Chief was organizing for the attack on Delhi, a delay of some days must take place before the attacking force can reach that fortress.

Dinapore.—Nothing has been heard from this place favourable or unfavourable. The European force consisted of half a Cawnpore battery, 3 guns and about 600 of Her Majesty's 10th.

Ferozepore, 13th May.—The 45th and 57th Native Infantry mutinied. The latter Regiment gave up its arms, while the former resisting, were attacked and dispersed by the Artillery, 61st Foot and 10th Light Cavalry which remained staunch.

Gwalior.—On the 28th May an outbreak of the troops of the Contingent was expected; preparations were made, and the ladies and families moved to the Residency. The Maharajah assisted with strong bodies of horse and foot, and placed a mansion attached to the place at the disposal of the ladies, where they would be safe. Nothing however occurred, and the ladies returned to cantonments the following day. The Contingent reported to be in a satisfactory state on the 1st June.

Hyderabad, (Deccan,) 24th May.—The Resident recommended that the Electric Telegraph should be closed, as a means of communicating news from the North West Government considered it inexpedient to act on this. The proceedings at Delhi had caused considerable excitement in the city; but no disturbance was anticipated.

Jullunder.—The native troops are said to be obedient.

Kurnaul.—A party of the force from Umballah reached on the 21st. On the 24th a portion was pushed on to Paneeput; the rest of the force cannot get away till the 31st. The delay

caused by the want of carriage, and the non-arrival of the battering train from Phillour.

Lahore, 13th May.—The three Regiments of Native Infantry, 16th, 26th, and 49th and 8th Light Cavalry, were disarmed, and the men are doing duty without arms. The Seikh Sirdars are understood to have offered their services to Government. *3rd June.*—Sir J. Lawrence says all safe as yet in the Punjab; but the aspect of affairs most threatening. The whole native army are ready to break out; and unless a blow be soon struck, the Irregulars as a body will soon follow their example. Send for our troops from Persia, intercept the force now on its way to China, and bring it to Calcutta. Every European soldier will be required to save the country, if the whole of the native troops turn against us. Every precaution which foresight can dictate is being taken, to hold our own independently of the natives.

Lucknow, 23rd May.—Arrangements for the defence of the several posts have been completed, all considered safe, except from external influences. *25th.*—The Eed prayers concluded without any disturbances. *29th.*—Disturbances threatened outside. Tranquillity cannot be much larger maintained unless Delhi be speedily captured. *30th.*—An *emeute* in cantonments at 9 p. m., 25 of 7th Cavalry proved false. Several Bungalows burnt. Two or three officers killed, and the same number wounded; among the former is Brigadier Handscomb. Quiet in city, majority appear loyal. *31st.*—Most of the Bungalows in cantonments burnt. An outbreak of mutineers, half of 48th, about half of 71st and some few of 13th Native Infantry, with two troops of 7th Light Cavalry fled towards Seetapore. Sir H. Lawrence followed for seven miles with four guns, two Companies of 32d Foot, and 300 Horse. The latter evinced no zeal. 30 prisoners taken. Mr. Gubbins went out with a few Sowars and attacked the rebels at 9-30 p. m. *2d June.*—Colonel Birch moved out from Seetapore with a wing to meet the mutineers, but they turned towards the Ganges, and do not appear to have rallied. The districts are still quiet, except one point about 20 miles North West of Lucknow; but it is expected that they will be quiet when they hear that eight men have been hanged, and that more are about to suffer. The faithful remnants of the 3rd Infantry Regiments, and 7th Light Cavalry, amounting to about 700 men, are now encamped close to the detachment of Europeans. Lucknow is in a much better position. Some disturbance in the city, which was put down by the police.

Meerut.—The following account of the outbreak at Meerut is taken from the Lieutenant Governor's report of the 22nd May:—“On the afternoon of Sunday, the 10th May, the 20th Regiment Native Infantry, began the mutiny by seizing its arms simul-

taneously and rushing in a body as if to incite or attack the 11th Regiment Native Infantry. Lieutenant Colonel Finnis, of the latter Regiment was asked by his men to allow them to take their arms : he refused this request, and went forward to speak to the mutineers of the 20th Regiment Native Infantry. They immediately shot him down. The 11th Native Infantry then seized their arms, and united with the other corps. A Company of the 20th Native Infantry had been placed as guard over the jail after the troopers had been placed in it. A body of troopers of the 3rd Cavalry rushed to the jail to release their comrades : a party of the 6th Dragoon Guards were sent to oppose this movement, but appear to have lost their way in the confusion which had immediately been produced ; for in the interval after the commencement of the disturbance, the Goojur inhabitants of the neighbourhood of the cantonments of Meerut rose *en masse*, plundering property, burning houses, and ferociously murdering every European they came across. In the universal disorder of the moment, amidst a general conflagration, the night came on, and the European force at Meerut was not able to act with any certainty or vigour against the retreating native Regiments. Around Meerut, the state of license in the villages, caused by the absence of all Government, spread for about twenty to twenty-five miles south and about the same limit, or somewhat more north ; within this belt, unchecked license reigned from the Jumna to the Ganges. The absence of any Light Cavalry, or effective means of scouring the country in this severely hot weather, paralyzed the attempts of the Meerut force to maintain any regularity or order beyond the immediate line of its pickets. The bungalows in the cantonments have nearly all been burned down, and all parties—officers, ladies, and children—were, and remain, collected within the enclosure of the Artillery School of Instruction, and in the several lines of barracks adjoining." General Hewitt gives the names of the killed at Meerut, and of those saved from Delhi.

Moradabad.—The troops appear staunch. A party of 200 Sappers and Miners have been forced to lay down their arms, and clothing, and plunder ; date not given.

Mynpoorie, 22nd June.—120 men of the 9th Native Infantry mutinied, but did not injure their officers. The Civil officers were devoting themselves to save as much of authority as could be rescued from the insurrection. By the tact and excellent behaviour of Ensign Dekantsow, the men were kept back from any overt act, and finally quitted the station to join the men of the corps at Allyghur *en route* to Delhi.

Muttra.—The Bhurtpore troops occupied the post, but were

subsequently moved on to the road between this place and Delhi. On the 30th two Companies of Native Infantry (the relieved and relieving) mutinied and plundered the treasury.

Neemuch.—Empty bungalows burnt. Magazine occupied by wing of the Gwalior Infantry. 28th.—All quiet among the troops; a panic in the bazar.

Nusseerabad.—Artillery and 30th Native Infantry considered staunch; doubts about 15th Native Infantry. Col. Lawrence had sent to Deesa for 250 European Infantry, 3 guns, and a squadron of Cavalry, and 200 Native Infantry. 26th.—All quiet; but state of affairs unsatisfactory. The Assistant in charge of Ajmere writes to the Political Agent at Jeypore, under date the 29th, that he has just heard that the 15th and 30th Native Infantry and Artillery with six guns, had left Nusseerabad for Delhi, dressed in Hindoostanee style.

Umballah.—The Artillery and 2nd Europeans detained on the 25th for want of carriage. The Commander-in-Chief in a Telegram from Umballah of the 19th May to the Governor General states: "All quiet here. Affairs do not go on well; the feeling of the native army may be a little improved, but none can be trusted. The two Regiments here profess that they will go where and do what they are ordered; they express regret for having committed themselves for a moment. They have since behaved well; but our European troops will not act with the same confidence if they are with them; we cannot leave them behind without sufficient number of Europeans to control them. The country is very much disturbed. The communication with Meerut difficult. I hope this will be remedied, having such a force at Kurnaul, we cannot move at present for want of tents and carriage; it would destroy Europeans to march without both, and we have no men to spare. I see the risk of going to Delhi with such small means as we have, perhaps 2,500 Europeans, for should they suffer any loss it would be serious, having nothing more to depend upon in the North West Provinces, but it must be done. I have not heard from below Delhi, or Lieutenant Governor, it would be important to have his views upon the subject, for troops should be brought from Persia, and those going to China should be stopped at Singapore. I hope we may hold on till the crisis is past. We must not omit any means of increasing our European strength. Since this message was begun I have heard from the Chief Commissioner of the Punjab. He recommends strongly that an order be issued giving up the new cartridge. I have adopted this advice."

On the 27th May His Excellency the Commander-in-Chief General Anson died of cholera at Umballah.

Umritsur.—It is stated that the 59th Native Infantry do not object to the new Cartridges. A Company of the 81st Foot occupy Govindghur.

Since the dispatch of the mail of the 18th May the following European troops have reached Calcutta: A portion of Her Majesty's 35th Foot, about 380 men from Rangoon, the 1st Madras European Fusiliers, and a wing of Her Majesty's 64th Foot. The 1st Madras Fusiliers have been pushed on towards Cawnpore, by horse-dak, bullock-train and steamers, a portion having already reached their destination. A Company of Her Majesty's 84th had previously been pushed on, and the remainder are following by horse-dak and bullock-train. The 35th have taken the place of the 84th, at Barrackpore, and the 64th will start this day by steam, leaving a few men to follow by the bullock-train. The "*Punjab*" is expected daily with the remainder of the 64th, which will likewise be pushed on as speedily as possible. The *Coromandel* has just arrived with a Company of the 84th from Rangoon, and a Company of Artillery, it is understood. Sir Henry Ward has offered to send 500 men of the 37th Foot from Ceylon. Two steamers left this, one on the 23rd and the other on the 24th ultimo for Galle, and will bring back the wing of the 37th. A steamer and sailing vessel have also been dispatched from Bombay to bring troops from Galle. The 78th Highlanders may also be expected in another week or ten days from Bombay. A circular was issued on the 29th explaining that none of the new cartridges had been issued to native Regiments. This became necessary from the gross misunderstanding which prevailed on the subject.

On the 24th May, the Ramghur Battalion volunteered to proceed against the mutineers. The Governor General in a General Order thanked the Battalion for this demonstration of their loyalty. On the 5th June a General Order was issued expressing the thanks of the Governor General for the zealous and loyal conduct of the Calcutta Militia in volunteering to proceed wherever their services may, at the present moment, be required.

The Governor General on the 19th June forwards to the Court of Directors in continuation of the narrative sent on the 6th June further intelligence and papers relative to the disaffection prevailing in the Native Army.

All communication by dak, as well as by Electric Telegraph, from and above Allahabad having been entirely cut off since the 6th June, very little information has been received of the events since that date.

Allahabad.—The 6th Native Infantry mutinied on the 6th at 9 p. m. They were joined by the three troops of Oude Irregular Cavalry, and the town's people. Thirteen European

officers are reported to have been murdered. The rest, with some Civilians, had taken refuge in the fort which was occupied by some invalid Artillery and the Regiment of Ferozepore Sikhs. A detachment of 1st Madras Fusiliers of between sixty and eighty men reached the fort the following day. Many of the Civil officers and European inhabitants are missing. About 350 Europeans of the 1st Madras Fusiliers, occupy the fort while the Sikh Regiment is at the Steamer's Ghaut protecting it; 406 more of the 1st Fusiliers must have reached by steam on the 16th or 18th. Town in possession of insurgents. 16th.—Col. Neill arrived all safe on the 11th, and Major Stephenson with 100 men on the 12th; party of 30 by steamer on 13th; 279 Fusiliers and 7 officers now here. All Sikhs outside; all guarded inside the fort by Europeans. Horses or bullocks with drivers much required for Artillery, to move out to attack enemy in cantonments. Bridge of boats retaken on 12th, and now held with picquets on opposite sides of river on Benares road. Enemy attacked daily. Heavy loss can best be inflicted with Artillery properly horsed or bullocked. Col. Neill could easily thrash the enemy. 500 Europeans, the least complement now, with half battery at least for this place, and all above 500 men, will be pushed on to Cawnpore. Allahabad now quite safe. The last report from Cawnpore was, it was in our hands. Nothing heard from Sir H. Wheeler: the road from Allahabad to Cawnpore quite closed.

Agra.—Appears to be all safe up to the 10th instant.

Allyghur.—The mutineers at Lucknow having crossed into the Doab and appeared at Allyghur, the detachment of Volunteers were forced to quit the place temporarily on the 8th.

Azimghurh.—The only officer killed is Lieutenant Hutchinson, Quarter Master of the 17th Regiment Native Infantry, who is said to have fallen in trying to save the post guns. The officers and ladies had arrived at Ghazepore.

Fort William and Barrackpore.—Major General Hearsey on the 8th and 9th June reports that the 43rd, 70th and 34th Regiments of Native Infantry, have voluntarily come forward and petitioned to be armed with the new Enfield Rifle. The Governor General expresses his great satisfaction at the request of the Regiments, proving as it does that the men consider there is nothing objectionable in either the rifles or the cartridges to their caste or religion; but desires to inform the Regiments that the supply of the new rifles received is so small that their request cannot at present be complied with. Major General Hearsey, having reason to believe that the native troops intended to rise on the night of the 13th sent for European troops in order to disarm the Regiments. This was quietly carried into effect on the

evening of the 14th, Sunday ; at the same time the whole of the native troops, except the body guard, in Fort William, Calcutta, and the neighbourhood, were quietly disarmed. At day break on Monday morning, the 15th, a detachment of European troops made a prisoner of the King of Oude, his Prime Minister, and others. These are now lodged as prisoners in the fort. A sepoy of the 43d Regiment having given information regarding a man, said to be a follower of the King of Oude, having tried to tamper with the sepoys in the fort, arrangements were made to secure the man, who had agreed with the sepoy to come again on the night of the 13th. The man came and was secured. He was tried by a Court-Martial on the 14th and sentenced to death. Unfortunately, during the night of the 14th, he effected his escape.

Benares.—On the news of the mutiny at Azimghur reaching Benares, a rising of the 37th Native Infantry was anticipated, and the authorities determined to disarm that corps. Accordingly the European troops and battery were paraded and marched on the lines of the 37th. The Regiment of Loodianah (Seikhs), with the Irregular Cavalry, and one squadron of the 13th were also under arms. On the Europeans approaching the 37th, that corps opened fire on them, which was returned by the European Infantry and Artillery. As the Regiment of Loodianah was advancing the Resaldar of the Irregular Cavalry rode up to the corps and called out that his men had mutinied. Some shots were fired by the Irregular Cavalry, on which the Seikhs paused, turned round, some firing towards the Cavalry, others towards the Europeans, on which the guns were turned on the Seikhs, who soon dispersed. The 37th in the mean time had been dispersed, and their lines were set on fire. The men of the 37th, the Seikhs, and Irregular Cavalry, passed through cantonments, and took the road to Jaunpore. Some of the Seikhs remained faithful, and protected the treasury, while others protected their officers. Some of the Irregular Cavalry also proved faithful, the party sent to Goruckpore and Azimghur for treasure having brought it in safety, and having since been usefully employed in clearing the road to Allahabad. The district and town appear pretty quiet, and matters appear satisfactory up to the latest date, the 18th.

Berhampore.—All quiet ; a detachment of Europeans from Barrackpore has been sent to insure the safety of the station. The 63rd N. I. at Berhampore having volunteered to be employed against the rebels, was thanked by the Governor General for their loyalty.

Cawnpore.—Nothing heard from this place since the 1th instant.

Chunar.—All safe.

Delhi.—A second action was fought on the 31st, near the Hindon. Brigadier Wilson's force, reinforced by Sirmoor Battalion, and some reinforcements from Meerut, was to join the Umballa Column on the 5th *via* Bhagpoot Ghaut. The force reached Delhi on the 8th, and drove the rebels dispirited into the town, capturing the heights in front of Delhi and twenty-six guns.

Dinapore.—All quiet up to the 15th. Major General Lloyd reported that the 7th Regt. N. I. volunteered to go against the mutineers. The thanks of the Governor General were conveyed to the Regiment for their loyalty and offer of services. On the 3rd June General Lloyd forwarded the following Circular Memorandum which he issued for the guidance of officers Commanding Stations and Posts in the Dinapore Division : "With reference to the present disturbed state of public affairs, officers commanding at stations and posts within the division, are hereby authorized, should emergency arise, to act at once, for the good of the service, upon their own judgment and responsibility, duly reporting the measures they may adopt for the information of the Major General Commanding, and of the Brigadier at Benares, as regards commands in the neighbouring districts." The Governor General approved of the Circular.

Dacca.—On the 12th June, a detachment consisting of 100 European seamen from the war steamers *Punjab* and *Zenobia* with two armed boats and two field pieces were sent to Dacca as a precautionary measure.

Gya.—A detachment of 120 Europeans sent to protect the treasury.

Hansi and Hissar.—The Hurrianah Light Battalion is said to have mutinied.

Jaunpore.—The detachment of the Seikhs, on the mutineers from Benares arriving, murdered their officer, Lieutenant Mara, and other Europeans, seized the treasure, and proceeded into Oude, *via* Fyzabad, Jemadar of the Seikhs having been elected Commandant.

Lucknow.—Nothing heard since the 4th instant.

Meerut.—Major General Hewitt reported as the latest news from Delhi was that the mutineers were divided into two parties, Mussukman and Hindoo, who had come into collision, and blood had been spilled. The four Companies of the 9th Native Infantry with the treasure from Bolundshuhur and Allyghur are said to have joined the mutineers. The Sirmoor Battalion have behaved well under Major Reid, in making their way to Bolundshuhur against great difficulties from the destruction of the Canal works, they were too late to save the treasure ; but the re-

tribution inflicted on the village, where the pillaged Government property was found, had contributed to the tranquillization of the district. General Hewitt forwarded a letter to his address from the Commander-in-Chief of the 23d May containing instructions with respect to the movements of the force from Meerut required to join the column advancing from Umballah towards Delhi. The two forces to form a junction at Bhagpoot on the 5th June.

Mynpooree.—On the 29th May, the Lieutenant Governor forwards an extract from a report from the Magistrate of Mynpoore containing an account of the occurrences attending the mutiny of the three Companies of the 9th Regiment Native Infantry at that station on the night of the 22d May; and brings to the notice of the Governor General the marked gallantry and devotion to duty of Lieutenant DeKantzow of that Regiment on that occasion. The Governor General expresses his admiration of Lieutenant DeKantzow's conduct and thanks him.

Mirzapore.—All quiet. Treasure removed. The Rewah Rajah has offered 600 Cavalry, 500 Infantry, and five guns. These have been accepted.

Nowgong.—The wing of the 12th Native Infantry and native Battery have mutined. Particulars not known.

Neemuch.—The troops at the station reported to have mutinied, as well as the Cavalry of the Malwa Contingent. The Infantry of the Contingent at Mehidpore said to be true.

Umballah.—On the 17th May the Commander-in-Chief reports that he arrived at Umballa on the 15th and ordered the following movements: The 2d European Fusiliers from Soobathoo to Umballa, and the Nuseereee Battalion to Phillour, to escort a third class siege train and ammunition to Umballah. Six Companies and Head Quarters of the corps of Sappers from Roorkee to Meerut, and the 4th Irregular Cavalry at Hansi to be in readiness to proceed wherever required. To restore the confidence of troops not mutinied, a General Order, intimating that sepoys would not be required to use objectionable cartridges was issued; and Commanding Officers were ordered to suspend all target practice and firing with blank ammunition. The European Regiments at Umballa are weak in point of numbers. Not more than 1800 effective men in the three corps of Infantry. Accounts recently received are more favorable than those of an older date. The troops concentrated at Umballa, though unable to move for want of carriage, are exercising a powerful influence. A detachment to leave this evening to Kurnaul to maintain order and reassure the inhabitants. The Putteealla Rajah has rendered considerable assistance and so has the Jheend Rajah. In another letter,

the Commander-in-Chief states that circumstances also have taken place at Umballa which render it is impossible to rely on the perfect fidelity of the 5th and 60th Regiments of Native Infantry and arrangements were accordingly made to meet the existing state of affairs. Sir John Lawrence in submitting a report sent to him by the Commissioner, Cis-Sutlej States, relative to the recent fires in the cantonments of Umballah, observes that these combinations, arsons and emeutes are all caused by the disaffection which has arisen from the introduction of the new cartridge, and that nothing but the giving up the use of the new cartridges will put a stop to the present state of affairs. If this be not done and made generally known, the disaffection which was pervades the whole of the native Regular Army will extend to the Irregulars. The list of fires which accompanied the reports shews that they have been directed chiefly against property either belonging to officers and men attached to the depot, or assigned to them for shelter during the hot months. The Government also have been considerable sufferers and these two facts are sufficient to shew that the musketry depot is obnoxious to the incendiaries, as well as the Government which authorized its establishment.

Calcutta.—The European troops arriving in Calcutta are being pushed up as quickly as possible. The whole of the Madras Fusiliers must now be at Allahabad, and the 84th have passed beyond Benares, as also a portion of the 61th, the last of the 78th Highlanders leave by bullock train to-morrow, the 20th, when the wing of the 37th will be despatched. One European battery left by steam this morning, and another is preparing to follow. The detachment of the Royal Artillery will also be sent up by bullock train. On the 4th June an Act No. XI. of 1857 was passed by the Governor General of India in Council providing that All persons owing allegiance to the British Government, who, after the passing of this Act, shall rebel, or wage war against the Queen, or Government of the East India Company, or shall attempt to wage such war, or shall instigate or abet any such rebellion or the waging of such war, or shall conspire so to rebel or wage war, shall be liable, upon conviction to the punishment of death, or to the punishment of transportation for life, or of imprisonment with hard labour for any term not exceeding fourteen years; and shall also forfeit their property and effects of every description : Provided that nothing contained in this Section shall extend to any place subject to Regulation XIV. of 1827 of the Bengal Code.

All persons who shall knowingly harbour or conceal any person who shall have been guilty of any of the offences mentioned

in the preceding Section, shall be liable to imprisonment, with or without hard labour, for any term not exceeding seven years, and shall also be liable to fine.

The Act moreover enables the local Governments to issue Commissions for the trial of such persons, or to disarm any class of the population.

On the 6th June an Act No. XIV. of 1857 for making further provision for the trial and punishment of persons who endeavour to excite mutiny and sedition among the forces of the East India Company, and also for the trial of offences against the State, was passed and published, together with the following General Order : " In pursuance of Act No. XIV. of 1857 passed this day, the Governor General in Council is pleased to authorize every General Officer Commanding a Division, every Brigadier, and every officer commanding a station, being the senior officer on the spot, to appoint General Courts Martial under the provisions of the said Act, as occasion may require for the trial of any person or persons who may be charged with any offence against the aforesaid Act, or against Act No. XI. of 1857, if such offence require in his judgment, to be punished without delay, and to confirm and carry into effect, immediately or otherwise, any sentence of such Court Martial.

General Courts Martial assembled under this authority may consist wholly of European Commissioned officers, or wholly of Native Commissioned officers, the number of officers not being less than five. The officer appointing the Court Martial shall determine whether it shall be composed wholly of European officers, or wholly of native officers, or partly of European and partly of native officers."

On the 1st June, the Governor General in Council reports to the Court of Directors that in consequence of the unhappy events which have occurred in the North Western Provinces, he thought it proper to publish the following Proclamation : The Governor General in Council has warned the army of Bengal, that the tales by which the men of certain Regiments have been led to suspect that offence to their religion, or injury to their caste, is meditated by the Government of India, are malicious falsehoods. The Governor General in Council has learnt that this suspicion continues to be propagated by designing and evil-minded men, not only in the army, but amongst other classes of the people. He knows that endeavours are made to persuade Hindoos and Mussulmans, soldiers and civil subjects, that their religion is threatened secretly, as well as openly, by the acts of the Government, and that the Government is seeking in various ways to entrap them into a loss of caste for purposes of its own.

Some have been already deceived and led astray by these

tales. Once more, then, the Governor General in Council warns all classes against the deceptions that are practised on them. The Government of India has invariably treated the religious feelings of all its subjects with careful respect. The Governor General in Council has declared that it will never cease to do so. He now repeats that declaration, and he emphatically proclaims that the Government of India entertains no desire to interfere with their religion or caste, and that nothing has been or will be done by the Government to affect the free exercise of the observances of religion or caste by every class of the people. The Government of India has never deceived its subjects. Therefore the Governor General in Council now calls upon them to refuse their belief to seditious lies. This notice is addressed to those who hitherto by habitual loyalty and orderly conduct have shown their attachment to the Government, and a well founded faith in its protection and justice. The Governor General in Council enjoins all such persons to pause before they listen to false guides and traitors, who would lead them to danger and disgrace.

A few days after the publication of the Proclamation, separate addresses by different classes of the community were presented to the Governor General, expressing their sorrow and concern at the mutinous conduct of a portion of the Native Army, and the disastrous consequences which have resulted therefrom, and offering to afford Government all the assistance in their power in the preservation of order and in the protection of the inhabitants of Calcutta. The Governor General in thanking the members of the Calcutta Trade Association for their offer of aid, observed that their services would be very valuable as special Constables, and suggested that those who were willing so to act to register their names at the office of the Commissioner of Police who had been authorized to enrol them. The Association was however, assured by His Lordship that there was no apprehension whatever of any riot, insurrection or disturbance amongst any class of the population of Calcutta, and that if any should occur the means of crushing it utterly and at once were at hand. The Governor General also stated that disaffection had not been evinced by all the sepoy Regiments in India as assumed by the Association, there being many soldiers and many Regiments in the Bengal Army who have fairly withstood the evil example and wicked Counsels which have destroyed the fidelity of the few Regiments that have mutinied.

To the French Consul, and other French Residents at Calcutta, the Governor General in returning his sincere acknowledgments hoped there would be no occasion to call for their services. Every thing was quiet within 600 miles of Calcutta. The

mischief caused by a passing and groundless panic, had already been arrested; and in the course of a few days' tranquillity, and confidence would be restored throughout the Presidency.

To the Native Community, Hindoo and Mussalman, the Governor General expressed his gratification at the loyalty, and good sense displayed by them at the present juncture in declaring their abhorrence, and the unqualified and just condemnation of the mutinous conduct of some of the Native Regiments, and remarked that the steadfast policy of the British Government in India has been and ever will be to observe a strict neutrality in matters of faith, to respect all scruples of caste, and to leave its subjects, of every creed, and class, to the free and uninterrupted enjoyment of their religious opinions and observances. The Native Community was also informed that decisive steps were taken for the suppression of the revolt, the punishment of those concerned in it, and the restoration of peace and order in the disturbed districts.

The European and other Christian inhabitants of Calcutta having offered to serve as Volunteers for the protection of the city, the Governor General in a Notification issued on the 12th June, invited all persons willing to serve in the corps of Volunteer Guards of Calcutta, either as horsemen or on foot, as members of that force, to enrol their names at the office of the Town Major in Fort William.

On 4th July* the Governor General in Council continues the narrative.

Agra.—All right up to 15th June.

Allahabad.—Lieutenant Colonel Neill arrived on 11th June. He immediately attacked the enemy, but was hampered by drunkenness, wine and spirits being sold to the Europeans at four annas a bottle. This was plundered from various public and private stores. The liquor was destroyed by order of Colonel Neill, the Sikhs turned out of the fort, and on the evening of the 14th he cleared Kydgunge. The Sikhs followed very rapidly, and the enemy evacuated the city that night. Some villages were destroyed and a system of Patrols organized to encourage the country people to bring up supplies. The women and children were all sent away in the steamers which took up the Fusiliers. Colonel Neill reports the cholera in the fort. Brigadier General Have-lock arrived on the 30th June, and a detachment consisting of 400 1st Fusiliers, 300 Sikhs, 28-pounders manned by Artillery Invalids, and 120 Cavalry started on that day for Cawnpore.

Attack.—No intelligence.

* There is some mistake about the date. The narrative is marked 19th June but it refers to the former narrative of that date, and brings events up to 4th July.

Azimghur.—Has continued occupied by Mr. Venables, Indigo Planter with 100 men of 6th N. I. and 50 of the 12th Irregular Cavalry.

Banda.—The Europeans were forced to quit the station on 14th June, two Companies 1st N. I. having taken possession of the treasury. All arrived at Nagode.

Barrackpore.—All quiet. The senior officer present with the 70th N. I. begged that that Regiment might not be disarmed, as the threat said to have been used "let us get beyond Pultah, and then see what we will do" must have been uttered by a bad character. The General of Division however remarks that the men ought to give the bad character up. The Governor General in Council agrees, and refers to information that respectable men in the corps had warned the officers not to take their wives. Desertions to the number of 151 had taken place from the 43rd N. I. of these 56 returned and were allowed to join their guards, and 1 Naick and 12 sepoys were brought back by the Civil power. The Naick was hung.

Bareilly.—On 23rd May Brigadier Sibbald reports that the men at Bareilly are quiet, but labouring under a great fear of punishment. On 30th May the Lieutenant Governor authorises the Brigadier to assure the troops in Bareilly that nothing has occurred to shake his confidence in their loyalty. On 31st May the troops mutinied. They consisted of a Horse Field Battery, No. 15, the 18th and 68th N. I. and 8th L. C. The officers Brigadier Sibbald excepted were allowed to escape to Nynsee Tal which was protected by the Goorkhas.

Benares.—All quiet. Station occupied by 200 Europeans, European Light Field Battery, 800 Sikhs and a few of the 13th L. C.

Berhampore.—A sowar of the 11th released some deserters from 43rd N. I. and tried to excite the troops to mutiny. He was sentenced to transportation for life.

Bhaugulpore.—In the district at Rohnee four men attacked Sir Norman Leslie, Major Macdonald and Assistant Surgeon Grant. The men were three of them sowars of the 5th L. C. The attack was made on the 12th. On the 15th the men were tried by drumhead Court Martial and hung.

Cawnpore.—It is understood that 2nd L. C. and 1st N. I. mutinied on 4th June, and were joined by Nana Dhoondé Punt of Bithoor. The first detailed intelligence was received from Nerput, Opium Gomashta of Cawnpore. He said the Nana had murdered all the Europeans he could find in the city, and also 126 men, women and children, who came in a boat. The English camp kept up its fire, but the troops inside were badly off for provisions. This occurred on 12th June.

On 28th June Sir H. Lawrence writes that the force had been destroyed by treachery. The Nana swore to protect them, then murdered all in their boats. Story is considered improbable.

Delhi.—The Umballa column was reinforced on June 6th by troops under Brigadier Wilson. The mutineers were defeated on the 8th with the loss of 26 guns. On the 14th June it was reported the troops had taken the palace with a slaughter of 7,000 men.

Ghazepore.—65th N. I. appear to be behaving well. There was a detachment of H. M.'s 64th at the station.

Gwalior.—The Contingent mutinied on the 16th. Scindia escorted some of the officers to Agra.

Goruckpore.—The Oude Government have lent 8,000 Goorkhas who were to leave on the 29th.

Hansi and Hissar.—The Hurrianah Light Infantry mutinied, but officers escaped to Thanesar and Sirsa.

Hyderabad.—1st Hyderabad Cavalry refused to fight against men of their own creed. The Hindoos separated themselves from the Mussalmans. The men seeing force arrayed against them calmed down. General Woodburn with a moveable column was however ordered by the Resident to proceed to Aurungabad. He arrived on 24th June. The 1st Cavalry were ordered on foot parade. The good men remained. The bad fled, and commenced saddling their horses, on which they were fired on and dispersed.

Jhansi.—Troops had mutinied, and fears were entertained for the Europeans.

Jullundur.—Native Infantry mutinied on 8th June, and were joined by 5th Native Infantry at Phillour. Pursued by a force from Jullundur and troops of the Aloowalla Chief.

Lucknow.—The mutineers were gradually closing in. The Residency, Muchee Bawun, and cantonments had been strengthened. All well up to 30th June.

Mynpoorie.—Held by a detachment of 1st Gwalior Cavalry under Major Raikes.

Nagpore.—The Irregular Cavalry of the Nagpore force were disarmed on 23rd June. The Seetabuldee Hill had been fortified, and the European Artillery from Kamptee moved there. Some native officers of the Irregular Cavalry were hung on the 30th June. The 1st Irregular Infantry took part in the proceedings.

Neemuch.—The troops mutinied on 3rd June, and proceeded to Delhi. The officers, who escaped, returned, and on 20th all was quiet.

Oude.—The troops at Seetapore mutinied on 4th June, those at Fyzabad and Secrora on the 8th, those at Sultanpore and

Persadipore on the 10th. The troops at Baraitch and Gonda went also, but when is not known. Officers not killed escaped to Allahabad. The fate of those at Seetapore not known.

Peshawur.—40 men of 55th Native Infantry blown from the guns for mutiny.

Rewah.—The Maharajah placed his forces at our disposal. Lieutenant Osborne sent 400 Infantry, 400 Cavalry and 5 guns to Unamapatam, whence they could command the Saugor, Dumoh, and Jubbulpore stations, and another force to the Kutra Pass.

Saugor.—All quiet on 1st July, and force of 600 men from 31st and 42nd and 5th Irregular Cavalry marched against Boondelas and routed them.

On 21st July the Governor General in Council continues the narrative.

Agra.—The Neemuch mutineers approached and the Europeans were compelled to enter the fort. The force comprised 650 European Infantry and Artillery, 200 or 300 Volunteers, the Kotah Contingent and some Kerowlee Horse. The Kotah Contingent however mutinied one mile out of town and fired on its officers. The Kerowlee Horse also left, but the Europeans marched on and defeated the enemy but were obliged to retreat for want of ammunition. Agra was virtually in a state of siege on 7th July, and Mr. Colvin incapacitated for business by a complaint of the head.

Allahabad.—Col. Neill has been appointed a Brigadier General. General Havelock's column left Allahabad on 7th July, and on 12th July defeated the insurgents before Futtehpore, taking eleven guns. Not a European was touched. The enemy's strength was 2 regiments of Cavalry, three of Infantry, and eleven guns. The result says the Brigadier General is to be attributed to "the fire of British Artillery, exceeding in rapidity and precision all that the Brigadier General has witnessed in his not short career, or to the power of the Enfield rifle in British hands, and to British pluck, that quality which has survived the revolution of the hour, and gained no intensity from the crisis, and to the blessing of Almighty God, and to the most righteous cause of humanity, truth and good Government in India." On 14th, General Havelock was compelled to disarm 13th and 3rd Irregular Cavalry, but on 15th again beat the enemy at Pandoo Nuddy, taking four guns. Brigadier General Neill left Allahabad for Cawnpore by dak on 16th July.

Banda.—The remaining officers of the 12th N. I. were safe with the Nawab of Banda on 29th June.

Barrackpore.—A detachment of seamen have been placed in Fort William to serve as Artillerymen.

Bareilly.—Col. Troup reports on 10th June that on 29th June the Commissioner wrote to him mentioning the intention of the 68th N. I. to mutiny on that day. This was confirmed by a Havildar Major of the Regiment. He armed all the officers, and the 8th Cavalry turned out apparently in heart and spirits. The day passed quietly, but on 31st June the men rose, the 68th firing on the officers in their bungalows. The officers were saved by some of the 8th I. C. who rode off with the surviving officers and ladies to Nynsee Tal. The native officers were promoted. Seven gentlemen of the station were known to have been murdered.

Cawnpore.—Brigadier General Havelock retook Cawnpore on 16th July. The Nana had murdered all the women and children, and retreated to Bithoor, blowing up the magazine. The British loss was about 70, but the action which lasted 140 minutes was a complete victory.

Delhi.—Sir H. Barnard, K. C. B. was attacked on 30th May on the bank of the Hindun. The mutineers were driven back with a loss of five guns, some carriages and ammunition. The besiegers lost eleven killed, nineteen wounded and two missing. On 31st May the enemy again attacked, but were driven back with loss. The besiegers lost 12 killed and 12 wounded. Major General T. Reed, C. B. joined the force on 8th June. The total force in camp was "4 guns, 2nd Troop, 1st Brigade; 2nd and 3rd Troops, 3rd Brigade Horse Artillery; 3rd Company, 3rd Battalion, Artillery, and No. 14 Horse Field Battery; 4th Company, 6th Battalion, Artillery; Detachment Artillery Recruits; Head-quarter's Detachment Sappers and Miners; Her Majesty's 9th Lancers; two Squadrons Her Majesty's 6th Dragoon Guards; Head-quarters and six Companies 60th Royal Rifles; Head-quarters and nine Companies of Her Majesty's 75th Regiment; 1st Bengal Fusiliers; Head-quarters and six Companies 2nd Fusiliers; Sirmoor Battalion." On June 8th, Sir H. Barnard carried an entrenched position at Badulee-ke-Serai, and drove the enemy despite a most determined resistance within the walls of Delhi. He captured twenty-six guns. The natives vied with the Europeans in zeal. Only one officer was killed, Colonel Chester, Adjutant General of the Army.

Indore.—Holkar's troops rose on 1st July, and attacked the Residency. The Europeans escaped to Sehore.

Jhansi.—It is feared that all the Europeans have been murdered.

Jubbulpore.—The Commissioner's house fortified, but safe up to 10th July.

Jullundur.—"The 36th and 61st Regiments mutinied on

the 4th June, and with a few men of the 6th Light Cavalry, proceeded to Phillour, where they were joined by the 3rd Native Infantry. These corps crossed the Sutlej a little above Loodianah, and eventually entered that town, from which they were driven by a party from Jullundur—part of Her Majesty's 8th Foot, and some European and Native Artillery, and some of the 6th Light Cavalry."

Lucknow.—On 30th June, Sir H. Lawrence went out with 200 of the H. M.'s 32nd, 40 Sowars, and 11 guns to attack insurgents. The Sowars and Artillery revolted, and the Chief Commissioner was compelled to retreat. Sir H. Lawrence died on the 4th July from wounds. Provisions were in store for six weeks.

Mhow.—The troops, right wing 1st L. C. and 23rd N. I. mutinied on 1st July, burnt cantonments, and murdered several officers. The remainder are in the Arsenal with European Artillery. Holkar's troops are said to have moved on Delhi. Holkar himself staunch.

Nagpore.—Three Ressaldars executed with the best effect. Great quantities of arms have been delivered up. The city remained quiet.

Saugor.—The 42nd N. I. mutinied on 3rd July, and part of 3rd Irregular Cavalry. The European Artillery and officers had previously provisioned the fort. The 31st and some of the 3rd Irregulars without their officers marched out and defeated the mutineers. The Government ordered a report on the circumstances which induced the officers of a Regiment thus proved to be faithful to quit it.

MADRAS BUDGET OF 1856-57.

Madras Records, No. XXXVIII.

On the 19th March, 1856, Mr. J. D. Bourdillon, Secretary to the Government of Fort St. George, Public Works Department, submitted Statements Nos. 1 and 2 of projects of Public Works proposed to be undertaken or continued in 1856-57.

The works in No. 1 are beyond the competence of the Madras Government to sanction. This number contains fifty-eight new projects involving an estimated aggregate outlay of Rs. 60,13,682, of which the sum of Rupees 26,93,577 is proposed to be expended in 1856-57. Out of the fifty-eight projects requiring the sanction of the Government of India, eight were included in the Budget of 1855-56. The remaining fifty are separately re-

ported on in the Budget under review, and are treated under the following classification :—

IRRIGATION WORKS.

- No. 45. Annicut over the Tambrapoorney River.
- „ 17. Continuation of the Southern High Level Channel from the Kistnah Annicut.
- „ 18. Kistnah Annicut Channel from Vallahbapoorum, to tide water on the Southern Bank.
- „ 32. Poiney Annicut Channel.
- „ 47. Calingaroyen Channel in Coimbatore.
- „ 1. Embanking the Mahanuddee in the Ganjam District.

NAVIGATION WORKS.

- „ 55. Extension of East Coast Canal from the Palaur to the Pondicherry Frontier.
- „ 54. Improving the Coast Canal between Madras and Am-muncovil.
- „ 14. Building two locks and Calingulaks in the Ankeed Canal and embanking the Weyairoo.
- „ 10. Increasing the width of the Palcole Canal with locks at Nursapore and Maurootair.
- „ 50. Cutting a Canal from the Tuddry River to Coomptah.

TRUNK ROADS.

- „ 29. Additional Metalling to part of Trunk Road, No. 1.
- „ 28. Raised causeway and bridges over the Puninggardee Backwater.
- „ 20. Masonry works between Covoar and Moodegunder River.
- „ 5. ——— works between Soobaram and Chittavalsah.
- „ 4. Formation of the Road between Chittavalsah and Chicacole.
- „ 3. Completing the road between Chicacole and Santhosha-poorum.
- „ 2. Construction between Santhoshapoorum and Denda-gudda.
- „ 21. Masonry works in completion of Trunk Road, No. 7.
- „ 35. Bridge over the Pennaur on Trunk Road, No. 8.
- „ 36. ———over the Vellaur on Trunk Road, No. 8.
- „ 39. Additional Metalling between Oolundoorpett and Samiaveram.
- „ 37. Bridge over the Pennaur on Trunk Road, No. 2.
- „ 38. ———over the Guddilam on Trunk Road, No. 9.
- „ 23. Masonry works on Trunk Road, No. 11.

DISTRICT ROADS.

- No. 6. Road from Vizagapatam to Polapurty.
- " 15. — — between Masulipatam and Ibrahimpatam.
- " 19. Bridge over the Boogairoo.
- " 26. First Class Road between Ghooty and Rayelcherroo.
- " 24. Completing Road from Cuddapah to Tolapodatoor.
- " 25. Bridging the Bellary and Humpsagur Road.
- " 30. Bridge over the Coom at Dacumbode.
- " 31. Road from Chingleput to Taiteray.
- " 33. ——— from Trivatoor to the Palaur Annicut.
- " 34. Bridge across the Palaur at the Annicut.
- " 40. ———over the Vellaur on the Southern Coast Road.
- " 41. Road from Trichinopoly to Salem boundary.
- " 42. ——— from Trichinopoly via Laulgoody and Woodiar-
polliem to join Trunk Road, No. 9.
- " 43. Bridge over the Vigay River.
- " 44. Pulkanooth and Nellocotah Road.
- " 46. Road from Palamcottah to Tuticorin.
- " 48. Bridge over the Ambravaty.
- " 49. Bridging the Guersappah Ghat Road.

BUILDINGS.

- " 11. Buildings for the Sappers and Miners at Dowlaiswa-
rum.
- " 27. New Hospital for the European Barracks at Bellary.
- " 57. Altering and improving the Dragoon Barracks at
Bangalore for the accommodation of a European
Infantry Regiment.
- " 56. Building two Blocks of married men's quarters in the
above Barracks.
- " 51. Improvements to the Custom House.
- " 52. Civil Audit Office.
- " 58. Secunderabad Barracks.

This project has already been sanctioned by the Government of India.

The Statement No. 2 exhibits the works sanctioned by the Government of India, the estimates of which amount to Rs. 88,76,807. Up to the end of the current official year Rupees 36,58,522 will have been expended. The amount required for the ensuing year is Rupees 37,07,214.

Putting the two Statements together, the total estimated cost "of works other than repairs, proposed to be under execution wholly or in part during the ensuing year under this Presidency, amounts to Rupees 1,48,90,489, of which sum Rupees 36,58,522 have already been expended and Rupees 64,00,791, it

is proposed to lay out in that year, leaving Rupees 48,31,176 for future years."

The amount proposed to be expended on repairs as exhibited in a third statement added under Nos. 1 and 2, is Rs. 18,54,470.

The following is an abstract of the expenditure sanctioned by Government for works described in the Statements submitted by Mr. Bourdillon :—

Districts.	Total Estimate sanctioned.	Amount already authorized to be expended.	Amount already expended.	Amount to be authorized for the year 1855-56.	Remaining amount available for completion.
1. Ganjam, ...	2,24,380	1,67,822	1,23,003	94,477	6,850
2. Vizagapatam, ...	1,01,492	78,309	54,500	46,992	0
3. Rajahmundry, ...	9,69,990	7,66,371	5,26,000	3,01,380	1,42,610
4. Masulipatam, ...	7,54,216	5,36,105	2,95,652	3,41,489	1,17,075
5. Guntoor, ...	3,80,948	2,84,937	1,56,932	2,06,255	17,761
6. Nellore, ...	3,09,193	1,70,713	75,175	2,29,018	5,000
7. Cuddapah, ...	1,54,901	1,29,549	75,460	79,441	0
8. Bellary, ...	3,94,421	2,68,649	1,69,130	1,80,911	44,380
9. Chingleput, ...	3,76,865	1,50,000	28,260	1,33,592	2,15,013
10. North Arcot, ...	9,00,828	5,69,889	3,58,889	3,33,639	2,08,300
11. South " ...	3,89,310	2,07,835	1,26,559	2,05,076	57,675
12. Tanjore, ...	4,54,943	3,18,844	2,20,564	2,31,379	3,000
13. Trichinopoly, ...	1,23,991	1,12,987	63,152	60,839	0
14. Madura, ...	1,29,708	47,117	19,003	54,665	56,040
15. Tinnevely, ...	89,539	87,915	23,957	45,458	20,124
16. Coimbatore, ...	15,25,749	4,37,343	4,16,200	5,02,306	6,07,243
17. Salem, ...	98,308	15,989	6,249	92,059	0
18. Canara, ...	1,99,769	1,86,239	1,17,588	82,181	0
19. Malabar, ...	2,72,429	1,46,039	80,423	1,92,006	0
20. Madras, ...	1,07,450	94,570	70,406	37,044	0
21. Secundrabad, ...	4,88,843	4,77,923	4,70,000	18,343	0
22. Sangor, ...	3,782	0	0	3,782	0
23. Jaulnah, ...	9,245	6,163	3,512	5,733	0
24. Kurnool, ...	1,75,560	1,42,707	77,908	87,652	10,000
25. East Coast Canal, ...	2,26,593	1,00,000	1,00,000	1,26,593	0
26. Mysore, ...	14,904	0	9	14,904	0
	88,76,807	54,53,415	36,58,522	37,07,214	15,11,071

On the 11th July, Colonel Baker, Secretary to the Government of India, Department of Public Works eulogizes the Madras Budget of 1856-57 for the admirable manner in which it has been prepared. He proceeds to convey orders upon the several projects enumerated in Mr. Bourdillon's letter of the

19th March, and expresses opinions and remarks on the following works in Statement No. 1, Projects Nos. 17 and 2; in the one, "no designs have been submitted for the aqueducts across the several streams, nor have the streams themselves been marked in the sketch Map" and in the other, "an approximate estimate of the cost of the larger Bridges has not been given. Expresses doubts as to the sufficiency of the foundations of the Pennaur Bridge, No. 35, and of the masonry works, No. 23, proposed in Trunk Road, No. 11 in the probable event of sand being found in the river bed to a greater depth than that of the substructure." The Project No. 18, Kistnah Annicut Channel, he considers "not complete inasmuch as the Bridges and minor Channels of distribution remain unprovided for. The selection of a site for the Channel, in such near proximity to the river, has probably been guided by the circumstance that the river's margin is higher than the adjoining land; but if this river be given like most other rivers in alluvial soil, occasionally to erode its banks, its neighbourhood to the canal may prove to be a source of frequent apprehension and danger." Calls for information as to the supply of water in the Kistnah at different seasons to feed the existing Channels and those projected, as well as that relating to the cost of the Bridges noticed above. The additional information furnished with Project No. 1 is defective. "The sections run merely along the bank of the river and do not show the relative levels of these banks and of the adjacent country. No information is given of the site of the embankments, what area of floodway they enclose between them? What volume of water is discharged by the river in highest floods; or to what extent the embankments would limit the present spread of water?" Sanction to further outlay on this project is withheld until satisfactory and complete report on the points above indicated shall have been submitted. Further and more detailed information is also called for respecting the Project No 55. 1st. The Canal being affected by the tides it is not clear how its level can be steadily maintained unless there be a lock at each point where it enters and emerges from these Tidal Lagoons. The number and position of such locks should be distinctly shown. 2nd. There is no specification of the works, and the estimate is a general one. The Project No. 14 being a work of considerable importance, a Statement of the nature and extent of the expected traffic and of the probable returns is required, and with regard to Project No. 50, Colonel Baker observes "that neither the length of the Canal is stated, nor is there a scale to the map." Directs attention to his remarks on the propriety of levying tolls on all Canals of Navigation. Projects Nos. 29, 26, and 24 to remain in

abeyance. Expresses doubt as to the efficiency of "Sand and Potter's earth" for road metalling proposed in Projects Nos. 6, 15, and 19, as the roads being important, will be subjected to heavy traffic. On Project No. 43, remarks as to the deficiency of the depth of the wells of the Bridge on the Vigay River, and considers it doubtful whether the Verandah on the Sea front of the Custom House could be used as an Export ware-house as proposed in Project No. 37.

On the 12th August the Government of Madras recapitulates the works sanctioned, and directs the attention of the Chief Engineer to the several points commented upon by Colonel Baker. The works that have been sanctioned are as follow :—

IRRIGATION WORKS.

	Rupees.
No. 18. Kistnah Annicut Channel from Vullabapoorum to tide water, ...	1,89,700
„ 47. Calingaroyen Channel in Coimbatore, ...	64,898
„ 54. Canal between Madras and Ammuncovil, ...	72,800
„ 10. Increasing the width of the Palcole Canal, and building a lock, ...	57,280
„ 50. Canal from the Tuddy River to Coompta, ...	86,021

TRUNK ROADS.

„ 28. Works at Puningardee back water on the Northern Trunk Road, ...	33,028
„ 20. Masonry works between Covoar and Moodigunda, ...	84,580
„ 21. Ditto, in completion of No. 7 Trunk Road, ...	89,434
„ 36. Bridge over the Vellaur on Trunk Road, No. 8, ...	37,263
„ 39. Metalling between Oolundoorpett and Samiaveram, ...	37,318
„ 37. Bridge on Trunk Road, No. 9 over the Pennar, ...	46,901
„ 39. Ditto ditto, Guddilum, ...	25,869

DISTRICT ROADS.

„ 6. Road from Vizagapatam to Polaparty, ...	45,750
„ 15. Ditto Masulipatam to Ibrahimpatam, ...	43,250
„ 19. Bridge over the Boogairoo, ...	38,558
„ 25. Bridging the Bellary and Humpsagur Road, ...	59,250
„ 30. Bridge over the Coom at Dacumbode, ...	26,860
„ 31. Road from Chingleput to Taitoray, ...	41,180

Carried forward,... .. 9,79,880

	Brought forward, ..	9,79,880
No. 33.	Road from Trivatoor to the Palaur Annicut, ...	38,600
„ 34.	Bridge across the Palaur at the Annicut, ..	94,400
„ 40.	———— over the Vellaur, on the Southern Coast Road, ...	35,020
„ 41.	Road from Trichinopoly to Salem boundary, ..	50,000
„ 42.	Ditto Ditto, via Lalgoody to join Trunk Road, No. 9, ...	43,600
„ 43.	Bridge over the Vigay River, ...	42,200
„ 44.	Pulkanooth and Nellacottah Road, ...	25,560
„ 46.	Road from Palamcotta to Tuticorin, ...	67,361
„ 48.	Bridge over the Ambravutty, ...	63,830
„ 49.	Bridging Guersapah Ghaut Road, ...	25,994

BUILDINGS.

„ 11.	Buildings for the Sappers and Miners at Dowlaishweram, ...	47,028
„ 27.	Hospital for European Troops at Bellary, ...	82,330
„ 67.	Dragoon Barracks at Bangalore, ...	1,55,600
„ 51.	Additions and alterations to the Custom House at Madras, and improving the external accommodation, ...	70,040
„ 52.	Rebuilding the Civil Audit office, ...	37,350

Total Rupees, ... 18,58,793

REPORT ON VACCINATION, MADRAS PRESIDENCY.

Madras Records, No. XLII.

ON the 9th June, 1857, Dr. A. Lorimer, Secretary Medical Board, submits returns of Vaccination throughout the Madras Presidency for 1856. The number of operations performed in 1856 amount to 4,02,440, while in the preceding year 4,39,651 Vaccinations were recorded, showing a decrease of 37,211. This deficiency in 1856 is discouraging, but the Medical Board believe, that the present returns have been more correctly prepared than those of the previous year, and thereby more real good has been accomplished. Other causes are also stated to which the Board ascribe the decrease in the number of Vaccinations, but the chief obstructions to the spread of the prophylactic are the prejudices and apathy of the Hindoo community, and the want of cordiality generally on the part of the Native of-

ficials in the districts. As a remedial measure the Board recommend that the Collectors and other Civil officers be reminded of the orders of Government to give that full support and co-operation to the Circuit Vaccinators, which is necessary to the promotion of Vaccination, but which has been so partially accorded.

The Government on the 14th July, record their remarks and orders on the report, and the causes which have affected the progress of Vaccination in the Madras Presidency, and express a hope that all the Civil authorities will afford the fullest support to those specially employed in this work.

REPORT ON THE ADMINISTRATION OF THE SALT DEPARTMENT.

For 1855-56.

MR. T. E. Trevor, Officiating Secretary to the Board of Revenue on the 7th February, 1857, submits statements containing the results of the Administration of the Salt Department for 1855-56.

The quantity of Salt in store on the 1st October, 1855, as compared with the same date in the previous year, was

	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>
In 1854,	11,26,664	14	15
In 1855,	20,59,864	12	4

The quantity imported and sold during the two years was as follows :—

IMPORTED.

	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>
In 1854-55,	73,63,823	30	12
In 1855-56,	74,09,058	2	12

SOLD.

	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>
In 1854-55,	59,12,566	32	5½
In 1855-56,	66,87,079	17	13¾

The following statement shows the Taidad and the actual outturn of each Agency during the past season :—

	<i>Taidad.</i>	<i>Outturn.</i>	<i>Deficiency.</i>
Hidgelee, .. Mds.	11,00,000	8,44,185	2,55,815
Tumlook, ...	9,00,000	6,51,834-18	2,48,166
Chittagong, ...	8,00,000	4,55,887	3,44,113
24-Pergunnahs, ..	6,00,000	2,33,068	3,66,932
Carried forward, ...	34,00,000	21,84,974-18	12,15,026

Brought forward, Mds.	84,00,000	21,84,974-18	12,15,026
Balasore, ...	7,00,000	6,51,100	48,900
Cuttack, ...	4,50,000	8,01,316	1,48,684
Pooree, ...	3,00,000	6,71,368	28,632
„ Kurkutch, ..	4,00,000		
Total, ...	52,50,000	38,08,758-18	14,41,242

The deficiency above shewn in the outturn in all the Agencies, the Board ascribe partly to the very unfavorable weather during the season of manufacture, and partly to the great difficulty in obtaining coolies and to some other causes.

The experiment for manufacturing Salt under the excise system has proved unsuccessful, and the Board attribute the failure to the contractors not being men of capital.

In the sales of Salt there has been an increase of 62,206 maunds in the undermentioned Divisions :—

<i>Maunds.</i>			
Chittagong, ...	..	..	17,108
Bullooah, ...	..	..	2,567
Backergunge, ...	..	..	3,686
Jessore, ...	..	..	6,139
Baugundy, ...	..	..	2,512
Barripore, ...	..	..	9,163
Calcutta, ...	..	..	1,257
Western, ...	..	..	6,680
Midnapore, ...	..	..	1,735
Jellalore, ...	..	..	11,359
Total, ...	..	..	62,206

There has also been an increase in the sales in Tumlook and in the three Agencies composing the Cuttack Divisions, aggregating 66,136 maunds 14 seers and $2\frac{1}{2}$ chittacks.

The confiscations during the year as compared with the past year were as under :—

	<i>Attached.</i>			<i>Released.</i>			<i>Confiscated.</i>		
	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>	<i>Mds.</i>	<i>Srs.</i>	<i>Cks.</i>
In 1854-55,	17,898	37	10 $\frac{1}{2}$	15,101	26	4	3,985	0	6 $\frac{1}{2}$
In 1855-56,	15,423	20	15	12,809	19	3 $\frac{1}{2}$	30,023	20	15 $\frac{1}{2}$

The convictions during the year under report were more numerous than the preceding year; and in Cuttack, the cases of smuggling have been fewer during the past year.

The Board subjoin the following remarks of the Controller upon the operation of the indulgent ruling of Section 27, Act XXIX :—

“The landholders generally have received the indulgence with a spirit of thankfulness which so rich a boon was well calculated to give rise to, and have by their co-operation to put

down illicit manufacture, prevented as far as I can ascertain any sacrifice to the Revenue. In addition to the Reports received from Barripore, Baugundy, Bulloah, and Western Superintendents to the effect that the Zemindars in their Divisions have strenuously endeavoured to check illicit manufacture on their respective Estates, I received during my tour credible information that Zemindars were doing all in their power to co-operate with our Preventive Establishment, and frequently took the initiative themselves in discountenancing illicit manufacture, and showing their displeasure on every occasion when it had been brought to their notice that any attempt to infringe the law had been resorted to.

“ During the past year, only two cases have been instituted by the Superintendent of Jellasore Salt Chokeys, and they are still pending in the Midnapore Judge’s file. In these cases, the Sudder Izardars were previously warned on several occasions, but to no effect. It was therefore, deemed necessary for the sake of example to prosecute them in the Civil Court.”

The Board express satisfaction at the above results, which show that the Zemindars appreciate the advantages of the indulgent reading of the Law.

The Board proceed to show the prospects of the current year. The Taidad for the current year is 52½ lacs of maunds. From this is to be excluded the Salt manufactured in Cuttack, 4,50,000 maunds, as that will not come into the market until after the close of the year, which reduces the Taidad to 34 lacs of maunds. The Board observe, that the quantity produced in the Bengal Agencies will equal that of the last season viz. 22 lacs of maunds. They sum up the provision for the year thus in round numbers :—

	<i>Maunds.</i>
Salt in store on 1st October, ...	27,90,000
Imported during first Quarter, ...	12,95,000
Cuttack Salt now being imported, ...	10,00,000
Expected outturn exclusive of Cuttack, ...	22,00,000
—————Imports,.. ..	22,50,000

Maunds, .. 95,35,000

The Board assume the total consumption to be what it is stated to have been in 1854-55 in Mr. Plowden’s Salt Report viz. 62 lacs of maunds, and there will still remain about 30 lacs of maunds in excess of the expenditure.

The importation of Madras Salt has been stopped.

MADRAS LAND REVENUE REPORT.

For Fusly $\frac{1264.}{1854-55.}$

On 19th February, 1857 the Government of Madras record their belief that the measures adopted by Government for affording relief, and the prosecution of works of irrigation, have brought the country through a period of much difficulty. The Government notice certain remissions, and express their desire that all such should speedily be discontinued, both to secure the revenue and the ryot's independence. They notice that the supply of sugar-cane was less by 3,500 cawnies than in the preceding year. The decrease is attributed to a scarcity which caused the people to abandon luxuries for necessaries. "The total demand for Fusly, 1264 was Rupees 4,63,60,842, of which 4,18,10,343, or more than 90 per cent. was collected within the Fusly; and at the end of January, 1856, Rupees 5,28,595 only remained." No great difficulty is apprehended in the way of realizing the balances. Government remark that the Tuccavee system will cease in Fusly, 1267, but the advances in this Fusly amount to Rs. 3,50,075. The salt revenue shewed an increase over last year of Rs. 3,61,594, and the net increase from all sources is Rs. 16,22,096. The Government trust the remissions to "privileged classes," if not in the nature of enams will shortly cease. Enquiry is to be made into outstanding balances, and the irrecoverable balances amounting to Rs. 45,399 are to be struck off finally, the money being owed by persons too poor to meet the demand.

"Before proceeding to describe the season under review, it is desirable to recall a few of the facts connected with that which preceded it. The season of Fusly, 1263 (A. D. 1853-54) was one of difficulty and depression, throughout the districts in the centre and on the eastern side of the Peninsula. Both the S. W. and the N. E. monsoons were seriously deficient, and the Board were obliged to give a painful picture of the state of several of the Provinces." The Land Revenue therefore fell off by Rs. 28,70,408, while the expenditure on public works undertaken to give the people food reached Rs. 17,00,000. The following table shews the revenue of the preceding ten years:—

<i>Fuslies.</i>	<i>Land Revenue.</i>	<i>Extra Sources.</i>	<i>Total.</i>
	Rs.	Rs.	Rs.
1254,	3,41,27,687	1,13,80,199	4,55,97,886
1255,	3,41,73,415	1,10,83,929	4,52,57,344
1256,	3,60,84,900	1,07,24,072	4,68,08,972
1257,	3,68,32,279	1,08,33,624	4,76,65,903

1258,	3,60,51,323	1,04,97,983	4,65,49,306
1259,	3,49,27,725	1,07,44,083	4,56,71,808
1260,	3,59,14,223	1,09,38,096	4,68,52,319
1261,	3,66,31,010	1,10,79,987	4,77,10,997
1262,	3,70,39,729	1,08,59,573	4,78,99,302
1263,	3,41,69,321	1,02,60,953	4,44,30,274

The season under review was not good, and in Bellary and Mysore there was great distress. For a time 1,00,000 persons were employed on the Public Works in Kurnool and Bellary, and in many districts the rains were deficient. The season was one well calculated to display the effects of works of irrigation. It was on the whole healthy. Its most remarkable feature was the rise in prices which amounted to 70 per cent. over the average of the preceding ten years. To meet this terrible pressure on the poorer classes Rs. 5,34,688 was expended on roads, and Rs. 9,49,160 more expended on the Railway, with Rs. 66,01,093 in Public Works greatly alleviated the distress. All duties on the import of grain were abolished, and in many places the price obtained for the crops compensated for the shortness of the harvest. The districts irrigated have most largely benefited. The revenue for the year was

				Rupees .
Land Revenue, ...	..	..	..	3,57,01,998
Extra Revenue, ...	..	...	..	1,03,37,118
Total, ...	..	...	..	<u>4,60,39,116</u>

The revenue therefore has recovered in spite of a season by no means favourable to the extent of Rs. 15,32,677. Five districts have slightly declined, a result produced entirely by reductions in the assessment. The total reductions amount to Rs. 11,37,491. The Board believe that the result will confirm the opinions of those most confident in the wisdom of diminishing the assessment in order to increase the area of cultivation. The Board proceed to explain the tables and add a list of persons in the Tanjore district who though ryots are wealthy. Thus 133 persons hold estates paying from Rs. 1200 to Rs. 9000, and seven landholders are named who pay from Rs. 10,475 to Rs. 25,000 a year. The advance in cultivation has been

Year.	...	...	Cawnies.
Fusly 1263,	...	..	85,42,623
„ 1264,	...	..	87,49,152
			<u>2,06,529</u>

"The amount of assessment on irrigated land, however, gives a lower total than in Fusly, 1263 owing chiefly to the reduction in the district of South Arcot and to the lower commutation rate in Tanjore." The following statement shews the amount cultivated with cane, cotton and indigo :—

<i>Products.</i>					<i>Fusly, 1264.</i>
					<i>Cawnies.</i>
Sugarcane,	...	..	...	...	27,457
Cotton,	...	..	...	..	6,56,584
Indigo,	...	..	...	..	1,22,309

There has been a decrease on all, chiefly on account of the scarcity which induced the ryots to cultivate necessities exclusively.* The indigo however has increased in North Arcot and Cuddapah. The Board referring to outstanding balances say that the ryots appear determined to try the existing law to the utmost, and that nothing short of a radical change will secure the punctual payment of revenue. Property to the extent of Rs. 7,071 was sold for arrears, but this statement shews much less than the truth, land having been sold subsequent to the close of the Fusly. The Board proceed to notice certain remissions, and express a hope that the system of Tuccavee or advances will soon be abolished. The charges of the year amount to Rs. 67,52,292 or Rs. 2,41,133 below those of the Fusly, 1263, but differences have been introduced in the mode of making up the accounts. The revenue from Salt has increased by Rs. 3,61,594, and from sea customs by Rs. 20,729. The following table shews all the items of Extra Revenue :—

<i>Items.</i>	<i>Fusly, 1263.</i>		<i>Fusly, 1264.</i>	
	Rupees.		Rupees.	
Salt, ...	46,67,316		50,28,910	
Frontier Chowkies, ...	2,47,360		1,64,802	
Moturpha, ...	11,69,466		11,15,543	
Sea Customs, ...	10,09,818		10,30,547	
Tobacco, ...	1,840		0	
Stamps, ...	5,76,449		5,57,338	
Abkarry, ...	22,61,528		21,44,230	
Sundry small Farms and Licenses,	3,27,176		2,95,747	

Total, ... 1,02,60,953 1,03,37,117

The Board explain the changes, and notice that the tobacco revenue which on an average from 1255 to 1261 produced Rs.

* There has been some blunder in binding this book, owing to the practice of paging each Chapter separately.

8,47,261 now produces nothing, the monopoly having been abolished.

On 17th March, 1856, the Commissioner for the Northern Circars reports that the Circars contain 16,060 villages and hamlets of which 4717 are Government villages and 5515 proprietary villages, and 572 villages are rent free. The Government villages are thus classified :—

	<i>Villages.</i>
Ryotwar, ...	1,425
Joint Rents, ...	1,530
Cosht do., ...	620
Rents for 1 year,.. .. .	217
Do. for longer periods, ...	231
	4,023

Cosht rent is a form of joint rent. It is proposed to change the joint rent system into Ryotwar.

Ganjam and Vizagapatam are irrigated districts, and in Masulipatam, 46 per cent. of the revenue is derived from watered Land. In Rajahmundry 38 per cent. is derived from similar sources, and in Guntoor, about 17 per cent. From the reports of the Collectors it appears that the great advantage of irrigation is the certainty it produces. Disease last year caused a falling off among the cattle to the extent of

Cows, ...	18,045
She Buffaloes, ...	17,031
Sheep and goats, ...	80,292

but the Commissioner places no confidence in the returns.

The Commissioner explains certain tables, and observes that the rains were plentiful, the average fall being 39 inches during the South West Monsoon and $5\frac{1}{2}$ during the North East Monsoon. In some of the districts there was an overplus of moisture very injurious to the crops. The Circars were more exempt from epidemic disease than during the previous year, but the mortality from fever was unusually large. The Commissioner explains some changes in the amount of receipts of little importance, and gives the following table of taxation :—

<i>Items.</i>	<i>Land.</i>	<i>Sist.</i>	<i>Average</i>		
			<i>per Acre.</i>		
	<i>Acres.</i>	<i>Rs.</i>	<i>Rs.</i>	<i>As.</i>	<i>P.</i>
Lands not irrigated,..	14,91,634	26,03,814	1	11	6
Depending on the Goda- very Annicut Channels,	89,553	3,12,992	3	8	0
Carried forward,	89,553	3,12,992	3	8	0

Irrigated Lands.	{	Brought forward,	89,553	3,12,992	3	8	0
		Depending on Tanks,	2,04,095	7,38,364	3	10	0
		Ditto on Channels,	1,01,125	3,81,324	3	12	4
		Ditto on Wells, ..	12,417	78,936	6	5	9
		Ditto on Rain, ...	40,820	92,681	2	4	0
		Total, ..	4,48,010	16,04,297	3	9	3
		Grand Total, ..	19,39,644	42,08,111	2	2	9

He explains the remissions which are small except in Guntoor where the season has been one of unusual disaster. The whole amount of remissions is Rs. 4,09,868, and the total of the Land Revenue is 66,75,464 being 8,754 above that of the preceding year.

Ryotwar, Cosht, and joint rents,	... Rs. 42,68,212
Rents for more than a year,	.. 1,29,136
Zemindaree and Proprietary estates,	.. 22,78,116

66,75,464

The value of land in occupation but not cultivated amounts to Rs. 3,92,487 of this sum.

The Extra sources produced Rs. 21,94,158 or Rs. 1,58,459 more than last year. The increase has taken place chiefly in Salt. The Sevoy Jummah or extra land revenue amounted to Rs. 95,280 chiefly from interest on outstanding balances. The Commissioner explains the balances, and proceeds to state that the total collections during the year amounted to Rs. 88,87,280, being Rs. 1,96,125 in excess of last year. The revenue was collected without recourse to coercion except in 13 instances. The charges amounted to Rs. 10,96,579 or 12.34 per cent. on the amount realized. "The charges on account of irrigation, exclusive of those incurred for the Godavery and Kistnah Annicuts, amount to Rs. 1,13,758 on a revenue of Rupees 16,04,297 from irrigated lands, the expenditure being Rupees 7-9 per cent. on the revenue." Enams lapsed during the year to the amount of Rupees 22,537 a year. Thirteen thousand and eighteen English letters had to be disposed of in the Collectorates in the course of the year, together with 1,14,109 vernacular letters, and 97,868 more issued to Tehsildars. The correspondence shews a tendency to increase.

The statements appended to the Board's Report may be thus condensed :—

Villages in Madras,...	...	...	..	95,963
Of these ryotwar, ..	...	..	...	30,896
Tanks, ...	...	..	...	38,792
Anicuts, ...	...	..	...	3,320

Ploughs, ...	10,39,090
Cattle for agriculture, ...	26,48,428
Cows, ...	26,01,960
She buffaloes, ...	10,62,309
Sheep and goats, ...	50,46,351
Population, ...	2,23,01,697
Ryôts, ...	12,47,056
Individual leases, ...	14,76,320
Joint, ...	1,64,572
Puttahs above Rupees 1000, ...	408
— above Rs. 500 but less than 750,...	1,027
— between Rs. 50 and Rs. 100, ..	78,133
— — — — — 10 and Rs. 50, ..	4,95,397
Extent of cane cultivation, cawnies, ..	20,269
Cotton, ...	5,69,050
Indigo, ...	1,18,514
Total Revenue from land, ...	Rs. 3,57,01,998
Extra sources, ...	1,03,37,117
Salt, ...	50,28,910
Sayer, ...	1,64,802
Abkarree, ...	21,44,232
Small farms, ...	3,27,176
Moturpha, ...	11,15,543
Customs, ...	10,30,547
Stamps, ...	5,76,449

The Appendix contains the separate report from each Collector with the figures, of which those given in the Report are the digest.

Vizagapatam.—The Collector explains his returns and notices the mode in which a tax is levied on clearings in the mountain jungle. The tax consists of eight annas on every knife employed.

Bellary.—The Collector furnishes tables minutely detailing the incidence of the Moturpha or trade tax.

1687	Corn merchants pay, ..	Rs. 7-10	each
526	Cloth ditto, ...	18-6	"
365	General and cloth, ...	26-13	"
4447	—, ...	9-12	"
93	Shroffs, ...	12-11	"
61	Confectioners, ...	7-15	"
183	Cotton dealers, ...	26-1	"
125	Betel and cocoanut, ...	12-13	"
75	Sugar and jaggery, ...	18-10	"
478	Betel and tobacco, ...	5-14	"
327	Oil dealers, ...	11-15	"
1123	Other dealers, ...	6-6	"

Carpenters pay Rs. 2-6, iron-founders Rs. 21-7, dyers Rs. 6-11, butchers Rs. 13-12 each. Each cloth loom pays Rs. 4-3, each carpet loom Rs. 3-8 a year.

EAST INDIA RAILWAYS.

Blue Book, dated 22nd July, 1857.

“THREE thousand six hundred and twenty-eight (3628) miles of railway have been sanctioned, and are in course of construction, viz. :—

By the East Indian Railway Company, from Calcutta to Delhi, with branches from Burdwan to Raneegunge, and from Mirzapore to Jubbulpore, 1,400 miles.

By the Madras Company, from Madras to the Western Coast at Beypore, 430 miles ; and

From Madras, via Cuddapah and Bellary, to meet a line from Bombay at or near the river Kristna, 810 miles.

By the Great Indian Peninsula Company, from Bombay to Callian, 33 miles, with extensions.

North East to Jubbulpore, to meet the line from Mirzapore, with a branch to Oomrawuttee and Nagpore, 818 miles ; and

South East via Poonah and Sholapore, to the Kristna River, to meet the line from Madras, 357 miles.

By the Sind Company, from Kurrachee to a point on the Indus, at or near to Kotree, 120 miles ; and

By the Bombay, Baroda, and Central India Company, from Surat to Baroda and Ahmedabad, 160 miles.”

These lines it is estimated will cost £30,231,000, of this sum £20,314,300 has been issued viz. £833,300 at $4\frac{1}{2}$ per cent. 1,000,000 at $4\frac{3}{4}$ per cent. and 1,84,810,000 at five per cent. of these sums.

East Indian Railway,	...	..	£8,731,000
Madras,	...	...	4,000,000
G. I. Peninsula,	...	...	6,333,300
Sind,	...	...	500,000
Bombay, Baroda and C. I. C.	...	...	750,000

20,314,300

The land required for the Railway and the termini has also been given Three hundred miles only are open, viz.

			Miles.
Calcutta to Raneegunge,	..	..	121
Bombay to Campoolie,	...	...	87
Madras to Arcot,	...	...	65

The works for the trunk lines, in accordance with Mr. Simms and Lord Dalhousie's advice, are most substantial. The guage fixed on for all India is 5 feet 6 inches. The Bengal line has cost about £12,000 a mile, and the Madras line £5,500. In Bombay the accounts are as yet too imperfect for the mileage to be ascertained. "The line in Bengal, now open, is 10 miles longer than the London and Birmingham Railway. The latter occupied six years, the former five years in constructing. In Madras, the execution of the works has been more rapid still, 65 miles having been opened for traffic within three years after commencement, and in Bombay, also, 33 miles were completed and opened in less than four years."

In Bengal 8,95,121 passengers, and 77,685 tons of goods were carried during 1856. The receipts were £95,188-18-4. Of the passengers 8,35,204 passengers were third class. The Great Indian P. Railway was open for an average length of 59 miles, and earned £37,312-12 in six months. Of this sum £28,549 was profit.

In Madras the Railway in six months carried 71,456 passengers, and 6,14,401 maunds of goods, and earned £11,720. Minute statistics of expenses on the East Indian and Madras Railways are added, and a Railway map of India.

REPORT ON THE ABKAREE, L. P.

For 1855-56.

On the 27th January, 1857, the Officiating Junior Secretary to the Board of Revenue submits the annual Report :—

	Rs.
The total collections amounted to, ...	36,18,692
„ Balances, ...	88,817
„ Charges, ...	6,12,409
„ Net revenue, ...	30,06,283
Shewing increase over 1854-55, of ...	2,37,294
The number of persons arrested was 1,276	

— imprisoned is only returned from some districts.

The estimated revenue for 1856-57 is Rs. 26,91,791.

The Board review each division, and refer to an attempt of the Police to interfere with the shops in Calcutta. In 1854-55 those shops numbered 152, yielding Rs. 2,11,825 a year.

REPORT ON CIVIL JUSTICE IN MADRAS.

For 1856.

THERE is no report, the record consisting of tables only. The most important statistics are as following :—

Suits instituted, ...	1,21,564
Value of property, ...	Rs. 1,11,49,999
Suits decreed, ...	47,043
For Plaintiffs, ...	40,747
Appeals decreed, ...	3,790
For Appellant, ...	1,674
Average duration of suits, ...	1 yr. 0 m. 16 days.
Highest—(in Honore), ...	2 yr. 6 m. 11 days.
Lowest—(in Guntoor), ...	0 1 m. 19 days.
Average duration of appealed suits, ..	2 yr. 8 m. 15 days.
Suits for Land rent and revenue, ..	4,566
„ Fixed property, ...	1,111
„ Debts, wages, &c., ...	41,366

The same details are added as to each class of Judge, together with tables shewing the work performed by every individual Judge.

EXTERNAL COMMERCE OF BENGAL.

For 1856-57.

THE total value of the “External Commerce of Bengal (Chittagong, Balasore, and the Provinces of Arracan and Tenasserim included) has amounted, in the year 1856-57, to Rupees 31,17,63,348, being an increase over 1855-56 of Rupees 2,41,99,786, or Rupees 6,95,88,028 above the average value of the commerce of the three preceding years.”

The total value of the Imports was Rs. 15,43,22,170, and of Exports Rs. 15,74,41,178. The Import of articles of merchandise has declined principally in cotton twist, and yarn, cotton piece goods, silk goods and glass ware. Manufactured metals have increased. The Exports on the other hand have increased by Rs. 94,13,839 chiefly in saltpetre, hides, opium, sugar and grain. Sugar has increased by Rs. 48,86,049, and grain by Rs. 60,85,071. Indigo, jute, and lac, have declined.

The comparative movement of trade in 1855-56, and 1856-57 is thus shown :—

Statement showing the Aggregate Value of the Principal Articles of Import into Calcutta by Sea in 1856-57, compared with similar Imports in 1855-56.

	1855-56.	1856-57.
Apparel, ...	Rs. 19,80,651	22,25,173
Beads, ...	3,95,187	3,61,831
Books and Stationery, ...	10,52,925	12,24,203
Cabinet-ware, ...	7,70,933	8,60,655
Chanks, ...	39,430	84,116
Cigars, ...	2,39,793	2,26,647
Coals, ...	5,86,717	3,96,860
Coffee, ...	1,14,157	71,614
Cotton Twist and Yarn, ...	90,02,951	81,22,578
— Piece Goods, ...	8,21,10,638	8,17,15,287
Drugs, ...	3,24,818	2,88,218
Dyes, ...	2,05,043	3,99,202
Fruits and Nuts, ...	8,21,699	11,40,169
Glass-ware, ...	10,73,457	7,78,963
Gums, ...	50,737	65,536
Hides, ...	2,91,138	5,85,906
Ice, ...	2,37,126	1,22,065
Instruments, Musical, ...	1,46,849	1,67,152
Jewellery, ...	6,09,930	7,13,295
Machinery, ...	39,28,928	19,07,381
Malt Liquors, ...	7,57,011	7,33,499
Manufactured Metals, ...	67,73,770	76,12,339
Medicine, ...	1,17,075	2,22,221
METALS. {	Copper, ...	24,21,581
	Iron, ...	12,19,584
	Lead, ...	1,33,621
	Quicksilver, ...	69,284
	Spelter, ...	4,09,871
	Steel, ...	1,12,153
	Tin, ...	4,07,846
	Yellow Metal, ...	1,04,750
Military Stores, ...	7,888	21,060
Naval Stores, ...	4,65,385	4,93,408
Oilman's Stores, ...	3,11,059	3,12,687
Paints and Colors, ...	3,07,158	3,60,968
Perfumery, ...	2,11,574	2,12,648
Porcelain and Earthen-ware, ...	1,39,911	1,80,265
Provisions, ...	8,96,663	4,78,382
Salt, ...	35,94,722	38,45,371
Silk Goods, ...	8,95,183	5,57,686
Spices, ...	7,94,778	11,54,390
Spirits, ...	8,03,021	8,94,276
Carried forward, ...	7,44,36,995	7,42,12,167

	Brought forward ...	7,44,86,995	7,42,12,167
Timber and Planks, ...	...	9,69,980	3,17,165
Umbrellas, ..	...	3,33,865	4,49,896
Wines, ...	...	10,66,673	10,08,737
Woollens, ...	...	7,67,280	6,88,156
Sundries, ...	...	20,96,101	22,63,606
Merchandise, ...	...	7,96,70,694	7,89,39,727
Treasure, ...	...	5,97,67,578	6,58,46,272
Total, Rupees, ...	...	13,94,88,272	14,47,85,999

Statement showing the Aggregate Value of the Principal Articles of Export from Calcutta by Sea in 1856-57, compared with similar Exports in 1855-56.

	1855-56.	1856-57.
Apparel, ...	Rs. 37,775	Rs. 20,757
Books, ...	20,398	3,348
Cotton Goods, ..	4,89,789	6,95,730
" Wool, ...	15,81,152	21,02,295
Cowries, ...	22,068	16,182
Drugs, ...	3,83,967	5,38,342
Dyes { Indigo, ..	1,97,84,900	1,47,66,431
{ Other sorts, ..	8,09,247	3,46,955
Grain, ...	1,16,97,691	1,77,82,762
Gunnies and Bags, ...	42,13,890	41,20,881
Hides, ...	37,15,824	49,77,136
Horns, ...	1,05,612	1,13,009
Jute, ...	32,65,748	27,49,754
Lac, ...	12,81,236	10,50,397
Naval Stores, ..	2,20,836	3,21,043
Oils, ...	4,72,029	5,55,234
Opium { Behar, ..	2,42,90,727	2,68,62,207
{ Benares, ...	1,20,98,691	1,18,25,832
Provisions, ...	1,41,293	2,38,890
Saltpetre, ...	42,35,333	54,10,742
Seeds, ..	82,52,441	58,01,124
Shawls, Cashmere, ...	5,64,792	3,44,678
Silk Piece Goods, ...	38,45,179	26,51,159
" Raw and Cocoons, ...	70,40,137	69,95,168
Spirits, Rum, ..	2,04,827	1,61,722
Sugar, ..	1,13,88,544	1,62,24,593
Tallow, ..	1,24,706	1,74,466
Tobacco, ...	1,20,644	2,12,419
Wax and Wax Candles, ...	96,497	3,63,680
Carried forward, ...	11,99,75,973	12,69,26,936

	Brought forward, ...	11,99,75,973	12,69,26,936
Sundries, ..	...	12,04,156	17,16,262
Total, ...		12,11,80,129	12,86,43,198
Imports Re-exported, ...	...	21,12,131	48,72,030
Total, ...		12,32,92,260	13,35,15,228
Treasure, ...	...	23,40,243	62,15,295
Total, Rupees, ...		12,56,32,503	13,97,30,523

Principal Articles of Import and Export to and from Chittagong in 1856-57 compared with similar Imports and Exports in 1855-56.

IMPORTS.					1855-56.	1856-57.
Betelnuts, ..	..	..	..	..	Rs. 1,274	Rs. 2,715
Coccanuts, ...	...	...	...	...	10,473	11,884
" Shell, ..	..	..	..	..	1,322	178
" Oil, ...	...	...	...	...	648	1,575
Cowries, ..	...	...	...	...	.....	8,225
Coir and Coir Rope, ..	..	..	..	..	7,738	10,815
Dammer, ...	...	...	...	..	1,643	3,149
Timber, ...	...	..	..	...	.....	3,375
Sundries, ...	..	...	...	..	8,892	10,653
Total, ...					31,990	52,569
Treasure, ...	..	...	...	...	6,000	4,000
Total, Rupees, ...					37,990	56,569
EXPORTS.					1855-56.	1856-57.
Grain, ...	..	..	...	...	Rs. 3,38,924	Rs. 4,55,738
Sugar, ..	..	..	..	...	4,085	2,665
Sugarcandy, ...	...	..	..	...	928	..
Piece Goods, ...	...	...	...	...	15,375	7,188
Tobacco, ...	...	...	...	..	13,002	5,964
Twist and yarn, ...	...	...	...	...	2,307	1,066
Timber and Planks, ...	...	...	...	...	9,318	737
Sundries, ...	...	...	...	...	13,092	8,156
Total Rupees,...					3,96,981	4,81,514

Principal Articles of Import and Export to and from Balasore in 1856-57 compared with similar Imports and Exports in 1855-56.

IMPORTS.						1855-56.	1856-57.
Coconuts, .. .. .	..	..	..	..	.....	Ra. 7,540	
Cowries, ... .. .	...	...	...	..	.....	165	
Cair, ... .. .	...	...	...	...	.....	2,390	
Cloth, ... .. .	...	...	...	...	.....	1,162	
Grain, ... .. .	...	...	...	...	.....	3,793	
Timber, ...	...	...	...	...	929	....	
Sundries, .. .. .	..	...	...	...	.....	3,883	
Treasure, ...	...	...	...	...	20,000	10,500	
Total, Rupees, ...						20,929	23,433
EXPORTS.						1855-56.	1856-57.
Grain, ...	...	...	...	...	Ra. 91,628	1,48,187	
Timber, ...	..	...	...	..	929	.....	
Sundries, ...	...	..	...	...	417	292	
Total, Rupees, ...						92,974	1,48,479

Principal Articles of Import and Export to and from Arracan in 1856-57 compared with similar Imports and Exports in 1855-56.

IMPORTS.					1855-56.	1856-57.
Apparel,	...	..	...		Rs. 4,320	Rs. 415
Ale—Beer,	...	..	..		6,648	7,448
Brandy and Gin,	...	...	...	...	4,240	2,790
Cotton Piece Goods, ...	...	...	...		80,126	7,537
China-ware,	...	...	...	...	9,916	...
Metal—Iron,	..	...	...	...	...	5,980
Rattans,	...	...	..	...	7,548	...
Timbers, ...	..	...	...	...	13,548	9,526
Wines, ..	...	...	...	..	6,221	4,046
Sundries,	...	...	...	...	85,723	67,246
Treasure, ...	..	...	..		1,60,136	3,21,554
Total, Rupees,.....					3,28,421	4,26,542
EXPORTS.					1855-56.	1856-57.
Cutch,	...	..	...	...	1,820	.....
Gunnies,	...	...	...	...	20,500	.....
Carried forward, ...					22,320	.....

			Brought forward,	...	22,320	.....
Grain,	...	...	...	...	Rs. 1,06,76,444	Rs. 29,85,078
Jute,	...	...	...	...	...	1,000
Hides,	...	...	...	...	2,898	...
Rattans,	...	...	...	...	3,976	728
Pepper,	..	...	...	...	...	5 678
Tobacco,	...	...	...	...	20,255	56,544
Sundries,	...	..	...	...	3,319	4,201
Treasure,	...	..	...	...	...	2,66,369
Total, Rupees,...					1,07,29,212	33,19,598

Principal Articles of Import and Export to and from the Tenasserim Provinces in 1856-57 compared with similar Imports and Exports in 1855-56.

IMPORTS.				1855-56.	1856-57.
Arms and Ammunition, ..	...	...	...	Rs. 5,821	Rs. 28,791
Cutch, ...	..	...	..	22,238	16,176
Earthen Ware,	...	..	...	28,679	...
Grain, ...	..	...	..	60,812	1,08,636
Malt Liquors, ...	...	..	...	95 179	24,051
Metal,—Iron,	..	..	..	8,780	24,052
Piece Goods,—Cotton, ...	...	...	...	6,55,944	7,99,065
Tobacco,	...	...	..	86,186	81,427
Twist and Yarn,	..	..	...	1,78,198	1,60,649
Wines, ...	...	...	...	20,226	8,005
Sundries, ...	...	...	...	8,82,912	12,58,050
Treasure, ...	...	...	...	1,58,548	4,24,122
Total, Rupees, ..				21,48,518	28,83,024

EXPORTS.				1855-56.	1856-57.
Betelnuts, ...	...	..	...	Rs. ...	Rs. 82,504
Cutch, ...	..	..	...	41,028	5,744
Grain, ..	..	..	...	6,12,652	9,27,692
Fishmaw,	...	..	...	551	3,041
Hides, ...	...	..	...	3,088	...
Horns, ...	...	...	..	568	189
Piece Goods—Cotton, ..	..	..	...	26 275	5,04,598
Stick Lac, ..	...	...	..	2,568	15,616
Twist and Yarn,	...	...	..	...	2,12,607
Timber, ...	...	...	..	10,86,462	20,63 966
Sundries, ..	...	...	...	65,684	6,53,772
Treasure,	...	...	..	2,13,370	1,47,910
Total, Rupees, ...				20,32,244	46,17,639

The largest trade is with Great Britain amounting to

Imports—merchandise,	..	..	...	Rs. 6,46,84,569
Treasure,	..	..	..	3,87,10,796

Total,	..	..	..	10,33,45,365
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Exports—merchandise,	..	...	...	4,47,30,708
Treasure,	...	...	...	300

				4,47,36,008
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Total,	..	...	...	Rs. 14,80,81,373
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France sends Rs. 17,67,308 of merchandize and Rs. 70,41,270 of treasure, and takes Rs. 88,67,714 of merchandise but no treasure. China sends Rs. 16,48,933 of merchandise and Rs. 75,17,485 of treasure, and takes Rs. 3,69,42,598 of merchandise, of which Rs. 3,27,67,507 consists of opium, and Rs. 20,58,726 of treasure.

The tonnage of Calcutta during the year was 1,014 vessels inwards with an aggregate of 5,72,127 tons, and outwards 1,113 vessels of 6,66,416 tons. More than a clear half each way carried British colours.

The Imports of specie into Calcutta were as follows :—

SPECIE AND BULLION.

IMPORTS.

1856-57.

United Kingdom,	..	...	Rs. 3,87,10,796
Aden,	..	..	51,300
America, North,	...	...	48,375
Arabian Gulf,	...	..	66,725
Bourbon,	...	..	8,92,989
Cape of Good Hope,	...	...	...
Ceylon,	...	..	1,58,150
China. { Hongkong,	..	...	15,08,615
Other Ports,	...	...	60,09,870
France,	...	...	70,41,270
Malta,	..	..	80,600
Mauritius,	...	..	5,17,530
New South Wales,	...	...	28,78,111
Penang, Singapore and Malacca,	..	...	41,22,985
Carried forward,	...	...	6,20,87,816

Brought forward, ...	6,20,87,316
Persian Gulf, ...	80,000
Suez, ...	16,55,161
Bombay, ...	15,765
Bimlipatam, ... ..	.....
Madras, ...	11,56,345
Rangoon, ...	7,93,685
Pondicherry, ...	58,000

Total, Rupees, 6,58,46,272

And the Exports Rs. 62,15,295, of which Rs. 13,85,902 was sent to the Cape, Rs. 17,41,500 to China, and Rs. 7,05,618 to Rangoon.

AREA AND POPULATION OF INDIA.

Blue Book, 27th July, 1857.

BRITISH STATES.

DISTRICT.	AREA.	POP.
	<i>Sq. Miles.</i>	
Lahore, ...	2,826	591,683
Umritsur, ...	2,024	884,429
Goordaspoor, ...	1,675	787,417
Goojranwalla, ...	3,752	553,383
Sealkote, ...	1,350	641,782
Rawul Pindee, ...	5,996	553,750
Jhelum, ...	5,850	429,420
Goojrat, ...	1,916	517,626
Shahpore, ...	8,500	261,692
Mooltan, ...	5,634	411,386
Jhung, ...	5,718	251,769
Googaira, ...	4,142	308,020
Leia, ...	6,122	309,696
Khangurh, ...	1,027	211,920
Dehra Gazez Khan, ...	4,000	238,964
— Ismael Khan, ...	4,123	862,041
Peshawur, ...	2,324	450,099
Hazarah, ...	2,424	296,364
Kohat, ...	2,840	101,232
Jullundur, ...	1,381	708,728
Hoshiarpoor, ...	2,204	845,354
Carried forward, ...	70,828	97,16,755

DISTRICT.				AREA.	POP.
	Brought forward,	Sq. Miles.		70,328	97,16,755
Kangra, ...	..	...	...	3,207	718,955
	Total,	...		73,535	10,435,710
Umballah, ...	...	...	...	1,832	782,017
Thaneysur, ...	...	...	...	2,386	496,748
Loodiana, ..	...	..	...	1,377	527,722
Ferozepore, ...	..	...	...	2,545	475,624
	Total,	...	...	8,090	2,282,111
Oude, ...	..	...	...	25,000	5,000,000
Nagpore or Berar, ...	...	...	...	76,432	4,650,000
Rangoon, ..	...	...	...	9,800	137,130
Bassein, ..	...	...	...	8,900	128,189
Prome, ...	...	...	...	5,500	100,000
Henzada, ...	...	...	...	2,200	103,775
Toungoo, ...	...	...	...	3,950	34,957
Tharawaddy, ...	...	...	...	1,950	66,129
	Total,	...	...	32,250	570,180
Amherst, ...	...	...	}	29,168	115,431
Tavoy, ...	...	...			
Ye, ..	...	...			
Mergui, ...	...	...			
EASTERN STRAITS SETTLEMENTS.					
Penang, ...	...	...	...	160	
Prov. Wellesley, ...	...	...	...	140	
	Total,	...	...	300	91,098
Singapore, ...	...	..	...	275	57,421
Malacca, ...	...	...	...	1,000	54,021
	Total,	...	...	1,575	202,540
Total under the direct administration of the Governor-General of India in Council, ...				246,050	23,255,972

BENGAL.

Patna, ..	...	...	...	1,828	1,200,000
Shahabad, ...	...	...	...	4,403	1,600,000
Behar, ..	...	...	...	5,694	2,500,000
Sarun with Chumparun, ...	...	...	...	6,394	1,700,000
	Total,	...	...	18,319	7,000,000

DISTRICT.					Area.	Pop.
					<i>Sq. Miles.</i>	
Bhaugulpore,...	...				7,803	2,000,000
Dinajpore,	...	...	...	...	3,820	1,200,000
Monghyr,	...	...	...	...	3,592	800,000
Poorneah,	...	...	...	...	5,712	1,600,000
Tirhoot,	...	...	...	...	6,114	2,400,000
Maldah,	...	...	...	...	1,288	431,000
Total,					28,329	8,431,000
Moorsshedabad,	...	...	...	...	1,856	1,045,000
Bagoorah,	...	...	...	...	2,160	900,000
Rungpore,	...	...	...	...	4,130	2,559,000
Rajahahye,	...	...	...	...	2,084	671,000
Pubna ...	...	...	...	...	2,608	600,000
Beerbhoom,	...	...	...	...	3,114	1,040,876
Total,					15,950	6,815,876
Dacca,	...	...	...	...	1,960	600,000
Furreedpore,	...	...	...	...	2,052	855,000
Mymensing,	...	...	...	...	4,712	1,487,000
Sylhet, including Jyntea,	...	...	...	...	8,424	380,000
Backergunge,	...	...	...	...	3,794	733,800
Total,					20,942	4,055,800
Jessore,	...	...	...	...	3,512	381,744
Twenty-four Pergunnahs, including City of }	...	...	...	...	2,277	701,182
Calcutta, ...	...	...	...	...	2,224	1,854,152
Burdwan,	...	...	...	...	2,007	1,520,840
Hooghly,	...	...	...	...	2,942	298,736
Nuddea,	...	...	...	...	1,476	480,000
Bancoorah,	...	...	...	...	1,424	522,000
Baraset,	...	...	...	...		
Total,					15,862	5,758,654
From Saugor Island on the West, to the }	...	...	...	...	6,500	not known.
Ramnabad Channel on the East,	...	...	...	...	2,717	1,000,000
Chittagong, ...	...	...	...	...	4,850	{ 806,950
Tipperah and Bulloah,	...	...	...	...		{ 600,000
Total, ...					7,567	2,406,950

DISTRICT.	AREA.	POP.
Cuttack, and Pooree, ...	<i>Sq. Miles.</i> 4,829	1,000,000
Balasore, ...	1,876	556,395
Koordah, ...	930	571,160
Midnapore with Hidgellee, ...	5,029	666,328
Total, ...	12,664	2,793,883
Grand Total, ...	126,133	37,262,163

NON-REGULATION PROVINCES.

UPPER.	{ Joorhat, or Seebpoor, ...	2,825	200,000
	{ Luckimpoor, ...	2,950	30,000
	{ Sudiya, including Muttruck,... ..	6,942	30,000
LOWER.	{ Kamroop, ...	2,788	300,000
	{ Nowgong, ...	4,160	70,000
	{ Durrung, ...	2,000	80,000
Goalpara, ...	2,166	39,835	
	Total, ...	24,531	749,835
Caohar, ...	4,000	60,000	
Territory resumed from Toola Ram Senahputtee,	2,160	5,015	
Ramgurrh, ...	8,524	372,216	
Palamow, ...	3,468	482,900	
Chota Nagpore, ...	5,808		
Pachete, ...	4,792	772,340	
Barabhoom, ...	860		
Singbhoom, ...	2,944	200,000	
Sumbulpore, ...	4,693	274,000	
Odeypore, ...	2,306	133,748	
	Total, ...	32,895	2,235,204
Akyab, ...	32,250	540,180	
Sandoway, ...			
Ramree, ...			
Total under the administration of the } Lieutenant Governor of Bengal, ... }	221,969	40,852,397	

NORTH-WESTERN PROVINCES.

Paneeput, ...	1,270	389,085
Hissar, ...	3,294	330,852
Delhi, ...	790	435,744
Rhotuck, ...	1,340	377,013
Goorgaon, ...	1,939	662,486
Total, ...	8,633	2,195,180

DISTRICT.				AREA.	POP.
			<i>Sq. Miles.</i>		
Saharanpore, ...	...	...	...	2,162	801,325
Mozuffernuggur, ...	...	...	...	1,646	672,861
Meerut, ...	...	...	...	2,200	1,135,072
Bolundshuhur, ...	...	...	...	1,824	778,342
Allyghur, ...	...	...	...	2,153	1,134,565
Total, ...				9,985	4,522,165
Bijnor, ...	...	...	...	1,900	695,521
Moradabad, ...	...	...	...	2,699	1,138,461
Budaon, ...	...	...	...	2,402	1,019,161
Bareilly, ...	...	...	...	3,119	1,378,268
Shahjahanpore, ...	...	...	...	2,308	986,096
Total, ...				12,428	5,217,507
Muttra, ...	...	...	...	1,613	862,909
Agra, ...	...	...	...	1,865	1,001,961
Farruckabad, ...	...	...	...	2,123	1,064,607
Mynpoorie, ...	...	...	...	2,020	832,714
Etawah, ...	...	...	...	1,677	610,965
Total, ...				9,298	4,873,156
Cawnpore, ...	...	...	...	2,348	1,174,556
Futtehpore, ...	...	...	...	1,583	679,787
Humeerpore, ...	...	...	...	2,242	548,604
Banda, ...	...	...	...	3,010	743,872
Allahabad, ...	...	...	...	2,788	1,379,788
Total, ...				11,971	4,526,607
Goruckpore, ...	...	...	...	7,840	3,087,874
Azimghurh, ...	...	...	...	2,516	1,653,251
Jounpoor, ...	...	...	...	1,552	1,148,749
Mirzapore, ...	...	...	...	51,52	1,104,815
Benares, ...	...	...	...	996	851,757
Ghazeepore, ...	...	...	...	2,181	1,596,324
Total, ...				19,737	9,437,270
Grand Total, ...				72,052	30,271,885

NON-REGULATION PRO- VINCES.

Kumaon, including Ghurwal, ...	...	6,962	605,910
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DISTRICT.			AREA.	POP.
Jaunsar and Bawar, ...		<i>Sq. Miles.</i>	579	24,684
Dehra Dhoon, ...	...	...	673	32,083
Khote Kasim, ...	...	...	70	13,767
Bhutti Territory, ...	...	...	3,017	112,974
Jaloun and Jansi, ...	...	...	4,405	376,297
Ajmere, ...	...	...	2,029	224,891
British Mhairwarrah, ...	...	...	282	37,715
Saugor, ...	...	...	1,657	305,594
Jubbulpore, ...	...	...	6,237	442,771
Hoshungabad, ...	...	...	1,916	242,611
Seonee, ...	...	...	1,459	227,070
Dumoh, ...	...	...	2,428	363,584
Nursingpore, ...	...	...	501	254,486
Baitool, ...	...	...	990	93,441
Total, ...			15,388	1,929,587
British Nimaaur, ...	...	...	302	25,400
Total under Lieut.-Governor of the North Western Pro- vinces, ...			105,759	33,655,193

MADRAS.

Rajahmundry, ...	...	...	4,501	1,012,036
Masulipatam, ...	...	...	4,711	520,866
Guntoor, ...	...	...	4,752	570,083
Kurnool, ...	...	...	3,278	273,190
Cuddapah, ...	...	...	13,298	1,451,921
Nellore, ...	...	...	7,959	985,690
Bellary, ...	...	...	12,101	1,229,599
Arcot, N., ...	...	...	6,580	1,485,873
—, S. ...	...	...	5,020	1,006,005
Chingleput, ...	...	...	2,717	583,462
Madras City, ..	..	...	27	720,000
Salem, ...	...	...	7,499	1,195,377
Coimbatore, ...	...	...	8,151	1,153,862
Canara, ...	...	...	7,152	1,056,333
Malabar, ...	...	...	6,050	1,514,909
Trichinopoly, ...	..	...	2,922	709,196
Tanjore, ...	...	...	3,781	1,676,086
Madura, ...	...	...	13,545	1,756,791
Tinnevelly, ...	...	...	5,482	1,269,216
Total, ...			119,526	20,120,495

DISTRICT.					AREA.	POP.
NON-REGULATION DISTRICTS.						
Ganjam,	...	...	Sq. Miles.		5,758	926,930
Vizagapatam,	...	...	..		4,690	1,254,272
Coorg,	...	...	...		2,116	135,600
Total,					12,564	2,316,802
Total under Madras Government,					132,090	22,487,297

BOMBAY.

Ahmedabad,	...	...	...	...	4,356	650,223
Kaira,	...	...	...	...	1,869	580,631
Broach,	...	...	...	...	1,819	290,984
Surat,	..	...	...	...	1 629	492,684
Tannah,	...	...	...	...	5,795	874,570
Candeish,	...	...	...	...	9,311	778,112
Bombay and Colaba Islands, including City }					18	566,119
of Bombay,	...	...	...	...		
Poonah,	..	...	...	...	5,298	666,006
Ahmednuggur,	...	...	...	...	9,931	995,585
Sholapore,	...	...	...	...	4,991	675,115
Rutnagerry,	...	...	...	...	8,964	665,238
Belgaum,	...	...	...	...	5,405	1,025,882
Dharwar,	...	...	...	...	3,837	754,385
Total,					57,723	9,015,534

NON-REGULATION PROVINCES.

Sattara,	...	...	...	...	10,222	
Sinde,	...	...	...	...	.....	1,005,771
Shikarpoor,	...	...	...	...	11 532	
Frontier District,	...	...	...	...	2,147	
Hydrabad,	...	...	...	...	26,760	
Kurrachee,	...	...	...	...	19,240	
Thur and Packur,	...	...	...	...	3,920	
Total,					63 599	1,768,737
Total under Bombay Government,					181,544	11,790,042

		AREA.	POP.
The Native States in Bengal, ...	<i>Sq. Miles.</i>	515,533	38,702,206
„ „ Madras, ...	...	51,802	5,213,671
„ „ Bombay, ...	...	60,575	4,460,370
Total, ...	...	627,910	48,376,247
Foreign States French, ...	...	188	203,887
„ Portugueze, ...	...	1,066	313,262
Total,...	...	1,254	517,149
Total of all India,...	...	1,466,576*	180,884,297

THE FOSSILS OF THE EASTERN PORTION OF THE GREAT BASALTIC DISTRICT OF INDIA.

Geological Papers on Western India.

THE great basaltic district of India extends for more than two hundred thousand square miles, and owes its formation to volcanic action. It is difficult to conceive of the grandeur that must have attended the appearing of this vast region, which was effected by eruptions separated from each other by various intervals of time. The fossils of such a district are therefore peculiarly valuable as affording guides by which the age of the great trap formation may be ascertained, and for connecting the great sandstone formations of the North and South of India. The basaltic district situated in two provinces, the Deccan, including all the country south of the Nerbudda, and that watered by the Southern branches of the Ganges, may be considered to be geologically connected by an elevated tract to the North West of Bundelcund. From the north of this station a number of rivers descend over sandstone escarpments into the valley of the Ganges and the Jumna. From the East and South of the same tract the Mahanuddy collects a great body of water, and after flowing through a country but very little known but containing the diamond mines of Sumbulpore flows into the Bay of Bengal. The Nerbudda flows in an opposite direction, and taking its rise to the west of Amercantack traverses a country of granite, sandstone and basalt abounding in iron, and the finest marbles, and finally debouches into the Indian Ocean through the alluvial plains of Guzerat.

All the other great rivers of the Peninsula, including the Godave-

* The area of Europe deducting Russia is 1,686,117 square miles, and its population, also deducting Russia, 189,475,968.

ry, Kistnah, Pennar and Cauvery, issue from the Western Ghâts from the summits of which the country slopes generally to the east, except to the extreme south, where the descent is precipitous. Of these rivers, the Pennar though comparatively a small stream, is of the greatest geological interest. The greater portion of its waters are derived from the district in which the diamond, sandstones and argillaceous limestones are exhibited in their most characteristic forms. The most remarkable phenomenon, however, in the district watered by this river is the horizontal summits of many of the ranges, and the distinct manner in which the continuity of the strata can be traced from one hill to another, although extensive plains intervene, while at no great distance the sandstone which forms the summits of these hills is seen on the same level as the surrounding plains. This succession of strata is nowhere more conspicuous than in the diamond mines of Bangnapilly.*

The plains at the foot of this table land consist of a rich black alluvium containing fragments of basalt and jasper, and its basis is a blue limestone abounding with springs. On ascending the limestone becomes paler and above Bangnapilly contains the diamond breccia.

On emerging from the Nulla Mulla range the Pennar enters the plains of the Carnatic, and flows through low hills of laterite resting upon the ordinary granite of the Carnatic with its associated hornblende schist, quartz rock and mica slate. It is in a rock composed of the last two minerals that the copper mines of the Nellore district are situated. Between the Godavery and Kistnah rivers is a granitic platform intersected by numerous greenstone dikes, which are composed of a crystalline compound of hornblende and felspar. The greenstone generally known in India as black marble, is difficult to work but is susceptible of a most beautiful polish as in the mausoleums of Golconda, the tombs of Hyder Ali and Tippoo Sultan at Seringapatam, and in many of the sculptures of the Carnatic pagodas. When these dikes were formed it is probable that the granite was in a fluid state.

In the granitic platform between Hyderabad and Nirmul several small basaltic hills are insulated. Their flat summits and steep sides correspond with the hills of the great trap district. The lower part of the hills is composed of laminae of a sonorous trap and the upper of globular concentric basalt, themselves friable and soapy to the feel but their nuclei of a deep black colour and containing large crystals of olivine and small kernels of calcedony.

On approaching the Godavery the granite changes its appearance and contains large and beautiful crystals of red felspar imbedded

* Woodcut given in the Report.

occasionally in veins of transparent quartz, clouded with spots of a milky colour. The river flows over granite and its bed is covered by numerous fragments of calcedonies and zeolites. The banks are composed of a black basaltic soil from the lower part of which thin slabs of kunkur project. About twenty miles to the east of Nirmul hornblende slate occurs. From this schist the magnetic iron ore, employed for ages in the manufacture of the damask steel, is obtained. The mines are mere holes dug through the thin granitic soil, and the ore is detached by means of crow bars. It is then collected, broken and washed. The ore is then smelted with charcoal and apparently no flux is used. The iron thus made is obtained at once perfectly malleable and tough and is equal to the best descriptions of Swedish. The mines, which afford a boundless supply of ore, are situated in the neighbourhood of vast forests and near a river navigable for boats during a period of the year. The iron ore thus found in the great sandstone formation, affords an additional argument in favour of the opinion of those who consider this rock and the subjacent schists as equivalent to the older European sedimentary formations rather than to those of the supermedial order.

On approaching the Sichel hills the granite becomes softer and decomposes rapidly, and the soil changes to the basaltic mould known in India by the name of cotton ground, mixed with calcedonies, zeolites, &c. In the bed of a torrent some very perfect specimens of the *Paludina Deccanensis** have been discovered and fragments of other shells. The hills themselves extend from the junction of the Wurdah with the Godavery in a W. N. W. direction, and are arranged in terraces with steep sides and projecting spurs. Their extreme breadth from the Nirmul Pass to Yedlabad is forty miles. They enclose narrow valleys abounding in streams or support table lands covered with black soil. The water is nowhere far from the surface. Granite not only forms part of the base of the hills but part of the mountains themselves. To the north of the Koorm river extensive fossil beds have been discovered consisting generally of gyrogonites, unios and individuals belonging to the *Paludina Physa* and *Limnea*. On descending towards Hutnoor granite presenting a concentric ligniform surface appears, but with this exception the basalt continues as before and *Paludinae* are found. There is much calcareous matter mixed with the soil and at Elchoda seams of a pure white pulverulent lime were found between layers of basalt. At Hutnoor fragments of blue limestone not dissimilar to that occurring in the diamond district are common. On the second terrace the surface rock is changed to a white limestone composed of large

* See Plate III. Figure 20.

bivalve shells, the edges of which are decomposing rapidly. The continuation of the stratum is buried under an accumulation of basaltic debris from an overhanging spur. Towards the foot of the Pass the rock changes from nodular basalt to amygdaloid and a little further on the granite reappears. The country surrounding Yedlabad is covered by a deep basaltic soil, and the bed of the stream near the town is strewn with fragments of blue limestone. At Zynad argillaceous limestone appears on the surface and between the strata, which are generally horizontal, rock crystal and calcareous spar are distributed in thin seams. On the surface kunkur is very abundant, and since along the vertical partings of the strata there are rows of circular cavities it is probable that the stuff was the deposit of limestone held in solution by water and gaseous fluids issuing from the lines of fissure.

To the east of the village of Zynad there is a gentle elevation composed of limestone extending for three miles, and terminating in a small conical summit composed of basalt which has broken through the limestone. To the north of this place as far as the Payne-Gunga river the country is flat, covered with basaltic soil connected with trap hills and intermixed with jaspers. To the north of the river limestone is seen, and masses of white kunkur. Still further towards the Pindee hills sandstone appears on the south bank of a ravine, and on the opposite side at a lower level argillaceous limestone, through which hot springs with a temperature of 87° force their way up. On the other side of the Pindee hills at Kair other hot springs of the same temperature whose water is remarkably agreeable to the taste occur. There kunkur is exhibited in all stages of formation; so quickly is the deposit of kunkur formed that shells are entombed whilst adhering to the surface of the rock and tufts of grass are encrusted whilst their roots are still alive.

Sandstone forms the surface rock over the surrounding country its junction with the limestone being concealed by basaltic soil. In this sandstone, at the hill of Won, a fossil having a compact structure and of a deep black colour was discovered. The fact is of considerable interest as but few if any other fossils have been discovered in the sandstone of Southern India. To the north at Hingan Ghat considerable fragments of silicified palms and other plants have been found embedded in the chert lying on the basalt.

From Hingan Ghât to Nagpore the country presents no organic remains, the whole country being covered with a rich black soil from which insulated basaltic hills with flattened summits rise abruptly.

Mr. Malcolmson after describing the geological structure of the country between the Kistnah and Nagpore passes

on to the consideration of the origin of minerals in trap rocks. In this paper he endeavours to shew that Dr. Turner and others are entirely wrong in their supposition that all calcedonies, rock crystals, &c. when occurring in volcanic rocks are the result of infiltration. If such a supposition were correct he shews that since under every layer of basaltic soil in India calcareous matter is found deposited, such matter would appear in the cavities of trap rocks rather than such intractable substances, which is not the case. He therefore considers that the existence of minerals in trap rocks is owing to the play of the molecular attraction existing between similar particles of matter. Mr. Faraday by an ingenious experiment has shewn that retention of carbonic acid depends upon the absence of moisture, and not upon its subjectivity to pressure. Thus, admitting the igneous origin of trap rocks, the presence or absence of moisture during the various degrees of heat to which the rocks were exposed in the progress of eruption and of cooling accounts sufficiently for the phenomenon that the fossils of the basaltic district sometimes retain their carbonic acid, whilst the rock in which they occur has been fused by the surrounding basalt. Considering that the truth of the theory as to the origin of minerals in trap rocks has been established the report discusses the era of the great basalt formation, and considers that it was posterior to the deposition of the sandstones. With regard to the diamond sandstone and argillaceous limestone, Mr. Malcolmson considers that they belong to the more ancient secondary or even transition rocks. The fossils embedded by the basalt all belong to fresh water genera and to species which apparently no longer exist. Most of the specimens have however only been found in recent or tertiary formation, and it is therefore extremely probable that the basalt in which they are imbedded belongs to the tertiary epoch; with regard to the relative age of the laterite and trap it is probable that the trap has been protruded from below since the laterite assumed its present form.

SECUNDERABAD TO BEEDER.

Being Dr. Voysey's Notes on the Country.

THE journal was commenced in January, 1819. The first objects of interest visited on the road were the tombs of Golkonda. They consist of large cupolas supported on square pilasters of granite of an extraordinary length, some of them being one solid

mass of at least 20 feet in height. The tomb is in the centre of the hall formed by the cupola and is made of greenstone. Of this greenstone a vein was discovered of about ten feet in width running east by south. Dr. Voysey minutely details the appearance of the country, and narrates how granite succeeded to trap and trap succeeds to granite. In many parts of his journey particularly between Secunderabad and Puttuncheroo the characteristics of the country were striking. Loggan stones and tors of the most grotesque appearance generally smaller than their pediment and piled three together, with tanks of some 25 miles in circumference, formed remarkable features. A vein of greenstone was discovered. It affected rhomboidal blocks and was penetrated with veins of quartz.

The river Manjira was crossed and the bund upon its banks, which were lined with granite, was observed to be full of magnetic iron sand. In all the streams passed in the journey which empty themselves in the Manjira carbonate of potash was observed.

The approach to the Godavery was over waving land entirely of trap and alluvium, and the height of the river two years before Dr. Voysey's visit was observed to have been thirty feet above its then present level. Near Oudeghir, the trap still continuing, iron clay very much resembling that of the Cape of Good Hope was seen. The route then led to Chillelah, Beeder being distant only about five coss.

Beeder is itself situated on a hill and is built upon a species of iron clay here found at the great elevation of 2000 feet above the level of the sea. The fort at Beeder was in a ruinous state for the builders finding the rock upon which it stood easily worked had cut it down level with the wall. The rock had subsequently mouldered, and the wall had been precipitated with it. At Beeder Dr. Voysey visited a button manufactory. After leaving Beeder the iron clay disappeared and was succeeded by trap soil interspersed with large masses of granite. Such continued to be the character of the country until Secunderabad was reached. In another part of the record Dr. Voysey remarks on some petrified shells found in the Gawilgerh range of hills.

MASULIPATAM TO GOA.

MASULIPATAM stands on the sea coast in nearly 16° N. latitude and is about 28 miles to the north of the principal embouchure of the Kistnah. The adjacent country is a plain which it is believed once formed the bottom of a lagoon. The

channel of the Kistnah, since altered, is supposed to have supplied much of the water. Towards Bezwarah gneiss makes its appearance, and there rises into a ridge six hundred feet in height. To the north east of Bezwarah are the diamond mines of Mallavelly where the gneiss is covered in some places by a conglomerate of sandstone. The diamonds are dug from a bed of gravel. The gneiss and granite continue to Hyderabad, and beyond to the village of Moonopilly, where they are covered by the great overlying trap formation. Near Beeder and sixteen miles east south east from that city the trap is overlain by an extensive laterite bed, two hundred feet thick, and extending to the west north west for twenty-eight miles. The laterite is a purply or brick red porous rock, filled with tubular cavities, empty, or containing white clay or blue tinted lithomargic earth. The sides of the cavities are ferruginous. The rock when not exposed to the air may be cut by a spade but hardens by exposure. Veins of manganese associated with oxide of iron sometimes occur in the laterite. On the side of those veins the laterite is so hard as to stand out in relief from the weathered portions of the rock. The laterite of Beeder is used for building walls and for the revetments of ditches. At Calliany a bazar has been excavated in the laterite cliffs. Beyond Murbi the laterite disappears, and trap with its associated wacke, amygdaloids and kunkur are alone met with. At the town ferruginous nodules existing in the laterite are collected, and after being roasted and coarsely ground are smelted. About ten miles to the south of Gulburgah beds of limestone outcrop from the trap and form the bed of the Bhima at Firozabad. At a little distance from the right bank of the river the trap again covers the limestone and continues to Inglisswara, where laterite appears. Trap then continues and is replaced by gneiss, which towards the junction of the Kistnah and Gutpurba is capped by limestone. To the west of the falls of Gokauk there is a limestone and sandstone formation succeeded by granitic rocks capped towards Goa by laterite.

THE GEOLOGY OF A PORTION OF THE DECCAN.

ON the 23rd of January, 1839 Colonel W. H. Sykes, F. R. S. F. G. S. F. L. S. read a paper before the Geological Society on the Geology of that portion of India lying between the parallels of 15° 45' and 19° 27' north latitude and 73° 30' and 75° 53' east longitude. The tract thus comprised extended over a district of 26,000 square miles and was remarkable for the

amazing extent of the trap region and the horizontal position of its stratified beds. But there were other prominent geological features besides the extent of the trap formation. The whole country had a granitic basis; trap veins occurred in granite; peculiar nodular limestone and laterite formations were widely extended; pulverulent limestone occurred in seams, and negatively, the country was remarkable for the absence of that uniform series of rocks which constitute the formations of Europe, and for the non-discovery of any fossil remains of extinct animals.

GEOLOGY OF THE ISLAND OF BOMBAY:

THERE are two papers on the Geology of the Island of Bombay printed in the Government records. One is by Mr. H. J. Carter and the other by Dr. G. Buist.

The Island of Bombay is one of a multitude of islands on the north-western coast of Hindostan. The group to which it belongs consist of about twenty islands, of which fourteen are well known. The principal rocks throughout this group are volcanic, and it is probable that the islands are all of the same age. In the formation of Bombay there have been four distinct periods:—1st. That of the primary volcanic or trappean effusions. 2nd. That of the deposit of fresh water strata. 3rd. That of the secondary or subsequent volcanic effusions, and 4th. The deposit of the marine strata. The fresh-water formation, as is proved by the absence of marine fossils, was deposited in a lake or river. The upper part of this formation, for 36 feet below the igneous rock that overlies it, is seen entire. Below this its strata have been broken up by igneous rocks. It is certain that this lake extended over the whole of the Island of Bombay, and it is probable that it extended as far as Ghora Bunder in the northern extremity of Salsette. In this formation there are the remains of wood, fruit and leaves. These appear to have been brought from a distance. It also appears that plants like large bulrushes grew in the lake and that it swarmed with cyprinidæ. The waters of the lake it is probable were dried up or diverted by a stream of molten larva. This was the first of the secondary volcanic effusions. The third period commences at this period. The irruption at present measures ninety feet thick on the eastern side, fifty-one feet thick on the western side of the Island. Thus immediately after this effusion it is probable that Bombay was black arid plain. After this effusion had hardened there was a second from below. The second effusion it is apparent could not find a ready outlet; it therefore followed the course of the

fresh water strata before it. These it intercalated and broke up into fragments. This effusion and the third effusion, it is probable, took a prominent part in raising up the longitudinal ridges running north east and south west which border the eastern and western sides of the Island. To these trappto basaltic and amygdaloidal effusions succeeded a third, which Mr. Carpenter styles the volcanic breccia. The interval that succeeded between the second and third effusions cannot be estimated. It is known however that the volcanic breccia succeeded to the amygdaloidal, for fragments of the latter are found amongst those fragments of heterogeneous rocks that compose the former. The principal characters of this effusion are, that it is composed chiefly of angular fragments of the fresh water formation which vary in size from particles that are invisible to the eye to pieces of ton's weight. These fragments form a continuous tract from Carnac Bunder to Sion. Mr. Carpenter considers this effusion to be contemporaneous with the lateritic formation, and is satisfied that it forced its way through the crusts of the previous rocks. There was yet another effusion. It is proved to have taken place by the existence of dikes of volcanic breccia.

The 4th period, it is believed, is not of a very ancient date. The marine deposit seems to belong to the post and newer pliocene formations. Bombay could never have been very long under water or very deeply immersed as the beaches scarcely exceed twenty feet in thickness. Mr. Carpenter here proceeds to describe those details from which the before mentioned inferences have been drawn.

As the report on the Geology of Bombay by Mr. Carpenter is thus speculative that by Dr. Buist treats of economic Geology. From Malabar Point to Mahaluxmee there is a fine continuous ridge of black basalt which continues with more or less interruption to Bassein. From the light-house at the extreme end of Colaba to Sion and on the eastern side of the Island there is a mass of trap. It is irregular, sometimes it sinks to the level of the sea, and at other times rises into knolls. Between these two ridges, the basaltic ridge from Malabar Point to Bassein and the greenstone and tuffaceous ridges last mentioned the Island is flat and for the most part below the level of the sea. This fact seems to prove that the Island has undergone elevation since the period of volcanic action ceased. Evidences of an upheaval and depression are further evident from the alluvium amid Bombay. The record here proceeds to give the surface formations described as 1. Lagoon formation. 2. Littoral concrete or raised sea beaches. 3. Blue clay or submerged and reclaimed silt. 4. Lower alluvium or old marine clay. 5. Red earth. The last formation is of a peculiar character. It is as its name indicates of a

bright red colour and is found lying immediately over greenstone or some similar variety of friable trap.* On first being exposed to the air it refuses to sustain vegetable life and it remains without vegetation during the wettest season. With moderate manuring it changes entirely its character and becomes a fine uniform unctuous soil remarkable for its fertility.

The marine and fresh water formations form natural reservoirs for water, the volcanic rocks preventing any exit. The basalt is nearly destitute of water but it is readily obtained in the sedimentary beds beneath the volcanic rocks. The greenstone affords abundance of wells and in the littoral concrete water may be obtained every where. The water there found usually rises and falls with the tide. Along the line of the sea shore water can be obtained at a depth of some ten feet. In the clay nearly all the wells are brackish, the clay around being impregnated with salt. From Matoonga to Sion water can be obtained at a depth of from ten to twenty-five feet. The report here enumerates the papers that have been written upon the Geology of Bombay.

THE TRAP FORMATION OF THE SAGAR DISTRICT.

CAPTAIN S. Coulthard submitted this paper to the Asiatic Society in 1829. The trap formation of Sagar is comprised within a district bounded on the north at Hirapur by a primitive range; on the south, to the south of the Nermada, by a primitive range, on the west by the longitude of Mayapur and on the east by a granite range crossing the Nermada at Jebelpoor and running in a northerly direction. This basin elongated east and west has in its bottom the sandstone deposit rising through the trap formation covered with a coating of lias or on the surface. It appears on the surface for one hundred and ten miles in a line drawn directly from Jebelpore to Sagar. From the western limits to the central part, that is from Mayapur to Sagar trap rocks darken the surface. At Sagar they rest on sandstone, which does not appear to have much between it and the proximate primitive rocks. The sandstone rock of this district itself contains more than 54,000 square miles, and may be considered as a continuation and a sort of north eastern bend, from Baroda as a point, of the rock of the Malabar Coast. The appearance of the trap militates on the whole against its being considered to have an igneous origin. In the limestone

* This must be received with caution.

of the trap no fossils had been found by Captain Coulthard but fresh-water shells and silicified wood have since been discovered in abundance.

ON THE GEOLOGY OF MALWA.

CAPTAIN Dangerfield's report on the Geology of Malwa, appeared first in Sir John Malcolm's Memoir of Central India. It has since been reprinted in a separate form.

Malwa is an elevated plain with its slope to the north. It constitutes the northern termination of an extensive trap formation. Malwa though bounded on all sides by hilly tracts contains none but table crowned hills varying from one hundred to three hundred feet in height. These mountains are distinctly stratified, and consist of alternate beds of basalt or trap and amygdaloid, from the great difference in the resistance made to decomposition by these strata their exposed ends acquire a very distinct character. The amygdaloid forms the great slope and the trap retains its original perpendicularity. This circumstance facilitates the construction of the forts so numerous in this part of the country. Below the Jaum Ghât in the Vindhya range about a mile from the Nerbudda between Mundleysir and Mhysir there is a cluster of basaltic columns. They rise from a small basaltic ridge. Their diameters vary from a foot to a foot and a half. Their general form is a prism of four or six sides. The basalt of which they are composed is of a brilliant black. The columns are both vertical and inclined. They dip to no particular point. The bed of the Nerbudda consists for a considerable portion of its course of basaltic rocks. These form numerous shallows and rapids. Below Chiculda until its entrance into Goozeerat the river is not navigable. Its bed is contracted by two hilly ranges and its course interrupted by elevated rocky ridges. The principal falls are three in number. They occur at Deyree, Sansadarah and at Hurrin Pall or Deer's Leap.

Between Mundleysir and Chiculda the banks of the Nerbudda are about 70 feet in height. They consist of a thin upper layer of rich vegetable mould, and two distinct strata of alluvium, from the upper of which muriate of soda is extracted by the natives. The lower stratum is impregnated with carbonate of soda. The soda is not extracted like the common salt but its efflorescence on the banks is collected. Above Mundleysir the northern bank becomes rocky and precipitous and consists of gently inclined beds, chiefly of greenstone slate with small in-

terspersed grains of mica, but the island of Mundatta consists of hornstone slate. Above this the banks are wooded and consist of low hills and deep ravines and water tanks. Iron ore abounds, but it is only smelted at Khautcote and Chandghur for the country is almost desolate. The ore is of good quality. This hilly tract corresponds to that below Chiculda which however is better peopled. It is inhabited chiefly by wild Bheel tribes and the Rajpeeply hills near Broach are inhabited by the coolies. In these hills there are several cornelian mines. In the upper plains of Malwa there is but little diversity, trap rocks alternating with amygdaloid. In the plain the vegetable soil, a rich black loam, varies in depth from three to ten feet. Near Sultanpoor beyond Dhar there is a large bed of jasper and in the neighbouring hills a great variety of crystallized siliceous minerals abound.

Along the whole bed of the Chumbul is a broad bed of horizontally stratified tabular basalt. It is probably connected with the basaltic columns in Nemaar. To the east of the Chumbul and extending the whole length of the province there is a narrow bed of cellular clay iron ore. It constitutes a low ridge of which the higher parts rest on sandstone. The ore is poor and is not worked. The northern portion of Malwa is chiefly occupied by sandstone and sandstone slates. The sandstones are generally very fine grained. The sandstones begin at a short distance south of Jowra and extend down the western boundary of Malwa.

At Cheetakairree iron ore is found in reniform or mammillated masses and is worked. To the west a compact greyish limestone appears. This rock again rises to the surface at Dewlia. From Bheindur to Kairoda the country gradually rises, but between Kairoda and the foot of the range that encloses the city of Oodeypoor the country is flat and swampy. The range itself is about 500 feet in height and is composed of either massive or columnar hornstone. Near the Oodeypoor valley a little to the southward of Deybaree is a fine lake. It is formed by a dam being thrown across the bed of the river Bedus which here flows through a chasm about one hundred feet in width. The dam is thirty-seven feet above the level of the lake, is 334 yards long and 110 yards broad at the top. This lake is however far inferior in its proportions to that at Oodeypoor which is supplied by the Goometry. The boundaries on either side of this lake are two mountains 700 feet in height. The dam closing the opening in the range through which the river burst is of marble. The height of this dam to the water's edge is fifty-four feet, its length is three furlongs and its breadth one hundred and ten yards. The lake is about eight miles long and four miles broad.

At Oodeypoor copper and lead are said to abound, and the mines to the northward and southward formerly produced a considerable revenue. At Oodeypoor there occurs a largely granular red limestone containing crystals of rather dark green serpentine and a very little mica. Granite again occurs at Jubboogaum. On the borders of Guzerat a coarse millstone is quarried and sent to Baroda and the neighbouring towns.

Of the geological character of the eastern and north eastern boundary of Malwa little knowledge had in 1823 been obtained. The country however consists of a broad hilly belt leading down to the lower plains of Bundelcund by the second range of the Vindhya.

GEOLOGY OF NAGPUR.

THIS paper only refers to the western part of Nagpur. It includes an area of twenty-four thousand square miles. "Its northern side is formed by the table-land stretching from the Mahadewa Hills on the north-west to the northern extremity of the Lanji Hills on the north-east; the south-eastern side is constituted partly by the chain last mentioned, and partly by a line drawn from its southern base to the junction of the Wein Gunga and Wardha, which latter river marks out nearly the whole of the south-western side." The district presents a water's bed from north to south. The most important rivers that flow through it are the Kanhan from the Mahadewa Hills, which at Kampti "receives the Pech from the same upland tract, and the Kolar,—the Wardhá, which is joined by the Wanna from the hills west of Nagpur, and by the Pain Ganga from the Nizam's country,—and the Wein Ganga, the largest of all, which on its left bank, is increased by the united streams of the Wagh, the Son and the Dewa, and by the Chulband, and on the right by the Kanhan, and Wardha, after its confluence with the latter of which it takes the name of the Pranhita, and ere long discharges its waters into the Godavari."

The geological structure of the territory whose extent we have mentioned has for sometime engaged the attention of scientific men. The first who examined it were unsuccessful in their search for fossils. In 1833, however, Dr. Malcolmson discovered *Unio Deccanensis*, *Physa Prinsepia*, *Paludina Deccanensis* and specimens of silicified wood, and since his time several productive sites for sandstone organisms have been met with. The paleontology of the district is in fact both varied and important. It is however the juxtaposition of trap sand-

stone and granite that invests the geology of Nagpore with special importance.

The greater part of the trap lies on the west in the shape of a parallelogram. Its greatest length is 120 miles and its breadth from fifty to sixty. Its south-western side is formed by the Wardhá, its south eastern side commences from Suit on the Wardhá to the north-west of Bhisi where its north-east side begins, and continues up the right bank of the Kanhán to the ancient Gond Fortress of Dewajad. At Dewajad the upland tract of Multai forms the north-west side and completes the parallelogram. In addition to this the main body of trap there is a development of it to the north.

The plutonic and metamorphic formation occurs principally to the north. This formation may be considered to form a parallelogram stretching between Nagpur and the Lanji hills of the same size as the trappean parallelogram and applied perpendicularly to it. A large outburst of granitic rocks occurs moreover in the upper portion of the Wagh river. In both the districts the general strike of the strata is north and south.

The sandstone formation exists in the central part of Nagpur and laterite occurs at various parts within the area. The report then goes on to describe "in a descending order" the thickness, nature and contents of the formations within the area whose boundaries have been previously assigned.

SUPERFICIAL FORMATION.

1. *Black Soil*.—It seldom exceeds twenty feet in depth and contains no organic remains of any antiquity.

2. *Red Soil*.—Is frequently fifty feet in depth and is for the most part unfossiliferous.

3. *Brown Clay*.—Both the red and black soils rest in this formation, which seldom exceeds twenty feet in depth and is not known to be fossiliferous. In its conglomerate however the tusks of a large mammal have been found.

4. *Laterite*.—This formation seldom exceeds 10 feet in depth. No fossils have been discovered in it, but to the east of Nagpur it contains diamond.

5, 6, 7.—The next rock to laterite is trap. This formation naturally divides itself into three heads, namely, overlying trap, aqueous formation and underlying trap. For the sake of perspicuity they are all considered under one head, trap.

The overlying trap is extremely varied, is of all tints, substance and structure. Its average depth is about 20 feet. The depth of the underlying trap is not known.

The fossils found in the fresh-water formation between the two are :—

" Small bones, probably reptilian.

Remains of a fresh-water tortoise.

Fish scales, both Cycloid and Ganoid, in great numbers.

Insects, found at Takli : Mr. Hunter enumerates about ten species of *Coleoptera*.

Entomostracans ; five or six species of *Cypris*.

Mollusca, land and fresh-water, in great numbers. The following genera are enumerated :—

Bulimus,	Melania,	Limnæus.
Succinea,	Paludina,	Unio.
Physa,	Valvata,	

Plant remains : Mr. Hunter enumerates :—

Frui's and seeds, about fifty species.

Leaves, exogenous, six forms.

„ endogenous, three or four.

Stems, exogenous, few species ; some specimens six feet in girth.

„ endogenous.

Roots, six or seven kinds.

Chara, seed vessels."

The relation which the underlying and overlying trap bear to each other is thus described in the report. "Before either of the volcanic rocks was poured out in our area, there had been deposited on the sandstone a stratum which must have been at least six feet thick. Over this there was spread a molten mass of lava, which hardened the surface of the stratum, and itself cooled into a flat sheet of globular basalt about 20 feet thick. After a period of repose the internal fires again became active, and discharged another effusion, which insinuate itself between the sandstone and the superior deposit ; and, accumulating in some parts more than in others, through force of tension, ruptured the superincumbent mass, tilting up the stratum and scattering the overlying trap, or, raising both stratum and trap above the level of the plain, either left it a flat-topped hill, or, with boiling surge, pushed up its summit gradually or by fitful efforts. In these convulsions, the more recent trap, where it has not tilted up the deposit altogether, has generally encroached upon it, entangling some of its fragments, converting the greater portion of it into a crumbling vesicular rock, or producing miniature outliers of amygdaloid from materials susceptible of the change."

8. *The Sandstone Formation*.—The report considers this under four heads :—1st. Coarse ferruginous sandstone, averaging a thickness of 25 feet. 2nd. A fine sandstone containing specks of mica, fossiliferous and with a thickness of perhaps 300 feet.

3rd. Red shale with a thickness of 30 feet and 4th, Limestone. The thickness of the limestone is perhaps 100 feet.

9. *Plutonic and metamorphic Rocks.*—In Nagpur the usual combinations of gneiss and quartz rock, mica and hornblende schist with massive granite occur but perhaps the most common rock is gneiss. The quartz rock yields gold but the principal ore that it yields is iron. This ore may be obtained in immense quantities in the district of Chanda “both on the east and west of the Wein Gangá. Near Dewalgaum, only three miles from the east bank of this navigable stream, which communicates by the Godávári with the Bay of Bengal, in the midst of a level country covered with jungle, there is a hill named Khandedshwar, consisting of strata tilted up at an angle of 60, or 70, the dip being to the north. The summit of the hill is about 250 feet above the level of the plain, 100 feet being gradual ascent through jungle, and the remainder an abrupt wall of naked rock. The iron ore is for the most part specular though many specimens possess polarity, and seem to be magnetic. It is on the surface of the slope that it is most valuable; but the whole mass, from an unknown depth underground to the highest peak above it, is richly laden with metal. This single hill might furnish iron for the construction of all the railroads that shall ever be made in India, and with its abundance of fuel and cheapness of labour, and convenience of situation, it is admirably adapted for an export trade to every part of the country. But besides this locality, there are others in the neighbourhood which could each contribute an unlimited supply of the same indispensable metal. Among these may be mentioned Lohará, Ogalpet, and Metápár, Bhánápur Mendá, and Gunjáwahi, which are all on the W. of the Wein Gangá; and at all of which places the ore seems to occur in quartz, and is sometimes granular, but for the most part compact.” The report proceeds to trace the geological history of the district.

Amongst the fossils discovered by Messrs. Hislop and Hunter in Central India was a cranium of a reptile that was submitted to Professor Owen. The fossil was found in the sandstone series of Mangali about sixty miles to the south of Nagpur. Professor Owen designates the species represented by this fossil “*Brachyops Laticeps*” and submits that it is closely allied to “*Labyrinthodont Batrachia*.” In a subsequent paper Mr. Hislop modified his views with regard to the Indian fresh water formation and divides them thus:—1. Upper sandstone series. 2. Laminated series embracing (i) arenaceous, carbonaceous and bituminous strata (ii) argillaceous shales and (iii) limestone. 3. Lower sandstone series.

FOSSIL FISH FROM THE TABLE LAND OF THE DECCAN.

THE author of this paper is Colonel Sykes. He says "considering the enormous development of trap covering some 200,000 square miles in the Deccan—the granitic basis of the whole peninsula of India,—the area occupied by laterite—the want of sedimentary rocks, and the hitherto total absence of organic marine fossils in the Deccan (for a few shells brought to notice by the late Dr. Malcolmson were either fluviatile or lacustrine),—the discovery of fossil fish on the margin of the trap region was a novelty necessarily of great interest, as indicative of the former submerged state of the peninsula of India." It is proposed to call the new specimen *Lepidotus Deccanensis*. It is remarkable for the slender proportions of the anterior part of the trunk and the thickness of the posterior part between the oval fin and the tail. The scales are perfectly smooth and the teeth are conical. Sir Philip Egerton thinks from specimens of this fish being generally found associated with terrestrial vegetable remains that it was an inshore fish.

THE GEOLOGY OF KOTAH.

THE village of Kotah is situated on a plain, on the left bank of the Pranheetah river twelve miles above its junction with the Godavery. It was from this locality that Dr. Walker obtained his specimens of fossil fish (*Lepidotus Deccanensis*.) At the station Dr. Walker conducted the experiment of boring for coal. No coal was however found. The surface formation in the immediate neighbourhood of Kotah consists of black regur or cotton soil, through this sandstone crops up, rising in ridges of hills to the height of some forty feet to the south of the station argillaceous limestone makes its appearance extending for about 150 yards. The layers of this rock vary in thickness from one eighth of an inch to a foot and are frequently separated from each other by seams of fibrous carbonate of lime. The report goes on to describe the deposits, succeeding each other from above downwards, as they were exhibited in boring for coal. To the report is appended a Note by Professor Owen on the Crocodilian remains of Kotah.

GEOLOGICAL NOTES ON TRACT BETWEEN BELLARY AND BIJAPUR.

THESE notes were taken by Captain Newbold, F. R. S. during a survey of the line of road connecting Bombay and Madras which lies between Bellary and the ancient Mohamedan capital Bijapur. "They commence from Bellary, comprising a line of 164 miles, extending in a north-westerly direction through part of the Ceded Districts, the Nizam's dominions, and the Southern Muratha Country, crossing at right angles the courses of the Tumbuddra and Kistnah rivers as they hasten across the Peninsula from west to east, to add their tribute to the Indian Ocean." Between Bellary and Yailbenchi a distance of 15 miles, the plain is supported on granite and gneiss, and for the last 4 miles is covered to the depth of 18 feet with cotton soil. This soil in some instances rests on "kunker" which is burnt by the natives for lime. The "kunker" resembles the travertine of Italy. The "regur" or cotton soil continues, as far as Devasamudrum and derives additional fertility from being watered by numerous rivulets running from the bank at Daroji. The soil produces rice, wheat and sugar-cane. In some places it is impregnated with muriate of soda, and there are established a few salt manufactories. Beyond Devasamudrum to the Tumbuddra which, is crossed by basket boats to Mustoor, gneiss is the prevailing rock.

At Mustoor, the plain rises towards Umaluti, a walled village about 25 miles distant. Beyond Umaluti, the regur is succeeded by the debris of granitic rocks. The country is indifferently watered and the majority of the springs are brackish.

At Tawurghirry occurs a range of hills called "Caradi Guddi" from being infested by a number of bears which are attracted by the dwarf date that luxuriate in the neighbourhood.

Beyond Tawurghirry chlorite slate occurs, and at Idlapur large masses of kuner embedding hematitic iron ore are seen. The chloritic slate is in this neighbourhood replaced by quartz until it again appears near Cundigul. Beyond Cundigul gneiss again makes its appearance and is succeeded by granite. The report here goes on to describe the Kistnah which Captain Newbold crossed in the usual wicker baskets. After leaving the Kistnah, the plain rises to the north and on the rising ground on which stands the little fort of Beylhal the road is literally paved with *boules* of trap. From Umblanur the trap is observed to undergo many changes in texture and colour. In some case the rock is divided into rectangular and rhomboidal prisms which by the mysterious law of crystallization manifested

in both ancient and modern trappean rocks, from the microscopic atoms of augite and hornblende to the prodigious pillars of Staffa and the Giant's Causeway, often assume a pentagonal and hexagonal shape. From Bagwari to Mangoli, $15\frac{1}{4}$ miles south of Bijapore, the trap continues, but is at times overlaid with laterite, before however reaching Bijapore the trap is again a surface rock. That city stands on an immense sheet of overlying trap. The report here contains further notes on the route to Bellary from Bijapore by Kannighirry, and concludes with a notice of the great overlying trap formation of Central and Western India.

GEOLOGY OF THE SOUTHERN MAHRATTA COUNTRY.

THERE are two reports on the Geology of the Southern Mahratta Country, one by Dr. A Christie and the second by Captain Newbold.

Dr. A. Christie observes that the "geognostical arrangement" of the rocks of the Indian peninsula is every where simple, the same formation being sometimes continuous for several hundred miles. The principle rocks are granite, transition rocks, old sea sandstone, trap rocks, and, superior to all this, a ferruginous clay-stone.

Granite is by far the most abundant rock in the Peninsula of India. It stretches from Cape Comorin to beyond Nagpore and Ellichpore, occupying a great part of the Carnatic, Malabar and Mysore, nearly the whole of the Nizam's dominions and a large part of Berar. It is also found in Malwa, Bundelcund, in the neighbourhood of Delhi, and some of the highest peaks of the Himalayas are composed of it; all the eastern portion of the Southern Mahratta Doab from Sungum to the British frontier consists of granite, but west of that it only occurs occasionally. Upon a superficial examination the granite of India might be pronounced to have several distinct structures but they all may be referred to the *lœminar*. The *lœmina* are often divided by natural seams; these seams becoming widened by the action of the weather account for the columnar and other appearances of the granite.

Granite is not generally employed in India as a building stone, it is used however for paving, and is hewn into handmills, two or four of which are a load for a bullock. These are the primeval mills of Scripture. The Hindoo temples at Anagoondy are built of granite. In one of the principle buildings is an extensive "colonnade, the columns

of which are light, with small pedestals and capitals and approaching somewhat in their proportions to the Grecian. Some of the pillars are tastefully carved with flowers. A few are in the form of caryatides. They support immense slabs of granite, which are carved on their under surface, so as to form an ornamental roof. The largest of these slabs, which are in the central part of the building are at least 30 feet long." The natives of India have a way of polishing granite, which communicates to it a black colour. They polish all kinds of stones by a mixture of powdered corundums and melted lac. The mixture being allowed to cool the stone is polished by being sprinkled with water and rubbed with these oblong masses.

The transition rocks occupy a large part of the Darwar and Canara districts and of the territory of Goa.

In the Southern Mahratta Country many varieties of clay slate are met with. Its principal colour are grey blue, greenish red and white. The grey variety is the most common. It occurs at Kulladghee, Darwar, Hoolgoor and Soonda.

Chlorite slate and talc slate have a wide distribution; both are met with throughout the whole of the central and southern parts of the Darwar district and in the western Ghâts.

Limestone occurs only in the north east part of the Darwar district, it is associated with clay slates and grey wacke, with the latter at Kulladghee.

Gneiss occurs in large quantities at Dummul and beds of it are met with at Nurgoond.

Beds of quartz are found among all the other transition rocks in this district.

Old red sandstone is one of the most extensive formations in India. In the Southern Mahratta Country it extends from Gudjunderghur to the north and north-east, as far as the Kistnah, some way into the Hyderabad country and from thence beyond Gokauk. It forms the summits of three insulated hills, those of Noulgoond, Nurgoond and Chick Nurgoond.

At Badamy, the hills, composed to their very bases of sandstone, have perfectly even summits, and are surrounded on all sides by vertical precipices. The hills have a height of probably 200 feet. The two small forts of Badamy are built upon these sandstone hills. The only ascent to them is by means of steps cut in the solid rock, the passage to which is between immense walls of rock 200 feet high.

Trap rocks occur extensively in different parts of India. In the Darwar district they do not occur in great abundance. In the neighbourhood of Belgaum the trap forms rounded hills.. The most common rocks that occur in the trap formation are a loose greenstone, basalt and amygdaloid.

Ferruginous claystone, the laterite of Buchanan, occurs in great abundance in the Deccan, in Mysore, in the district of Cuddapah and Orissa. It extends all along the Western Coast from Fort Victoria to the Southern extremity of the Peninsula. It is met with in Ceylon and is almost the only rock of Malacca. In some places it contains numerous small nodules of clay iron stone. These are picked up by the natives and smelted in a rude furnace blown by the hand bellows, such as is used in Europe by the Gypsies.

Immense deposits of a black alluvial clay are met with in various parts of India. "It is denominated cotton ground, from the circumstance of that plant being always cultivated upon it. It is the regur soil of the ryots. It forms large plains throughout the whole of the Deccan; some of them sufficiently extensive to bring to mind the descriptions given by travellers of the Pampas of South America, or the steppes of Russia." Dr. Christie considers the soil to have originated from the disintegration of the trap rocks.

Captain Newbold proceeded westerly across the Mahratta Country, following the right bank of the Gutpurba to the falls of Gokauk having the Kolapore territory to the right. He does not consider regur to be the detritus of trap rocks, nor to have a "fluvatile origin." Its appearance in the Ceded Districts watered by the Tumbuddra, Pennaur and Hogri rivers, none of which touch the trap formation, militates against the first, and the fact that it is seen covering vast flat plains like seas, hundreds of miles from the banks of great rivers, is conclusive against the second.

On the south bank of the Gutpurba are some low hills running E. S. E. composed of breccia, and from these hills to the Sitadonga hills a plain covered with regur extends. The hills at Badamy and Gujunderghur are composed of sandstone. Beyond these hills through which the Gutpurba finds its way occurs the plain of Bagulcotta. It continues west to Kulladghi. At Bagulcotta a pale buff-coloured limestone occurs that might be applied to lithographic purposes. Talicotta is the most promising locality for lithographic limestone. About a mile from Kulladghi are slate quarries. They yield hones, roofing slates, slate pencils, and huge blocks for pillars of temples, Hindoo idols, &c.

At Hirasillaky five miles from Kulladghi are iron mines. The metal sells at from two to two and a half rupees the pukka maund of forty-eight seers. Land carriage is readily procurable.

The report here describes the geological formation of the country between Kulladghi and the falls of Gokauk.

The Gokauk and Cotabanghy hills form the eastern flank of the Western Ghats and run in a parallel direction. They are entered from the east by a picturesque gorge through which the Gutpurba emerges. The falls are about three miles and a half to the east of Gokauk. The road lies along the bottom and side of this defile on the right bank of the river which here varies in breadth from ninety to three hundred yards. "The Gutpurba, a little above the fall, is apparently about 250 yards across, but contracts to 80 as the brink of the chasm is approached; consequently, the density and velocity of the watery mass is much increased; and it hurries down the shelving tables of rock with frightful rapidity to its fall.

The fall over the face of the precipice seems slow and sullen from the velocity of the surface water of this rapid, and from the great denseness of the body; and it plunges heavily down with a deep thundering sound."

The falls are 178 feet in depth on the cliffs near the falls; on the right bank of the river is a small group of Hindoo temples, dedicated to Siva.

From the falls of Gokauk to the cantonment of Belgaum about $34\frac{1}{2}$ miles, the route is nearly south west across an elevated table-land sloping to the eastward, covered with alternate bands of red and black soil and intersected at Padshahpoor, which is about $11\frac{1}{2}$ miles from the falls, by curvilinear spurs and outlying hills. About a mile to the north east of Belgaum another sheet of trap is entered upon, it continues unto Baugwari, where the edge of the trap is seen reposing on the hypogene schists at the base of the trap hills close to the village.

From the banks of the Malpurba to Darwar, a direct distance of twenty-three miles, the country is hilly and picturesque. The soil covering this tract of country is usually reddish, and the result of the decay and washing of the neighbouring rocks. The rocks composing the hills are schists passing into slates and shales.

South of Darwar to the Mysore frontier near Bunwassi and Chundergooty the face of the country presents a plain diversified with a few smooth conoidal hills. The soil is reddish and alluvial, and is in some directions intersected by belts of cotton soil. Towards Bunwassi quartz rock prevails with greenstone dikes. A little to the south of Bunwassi the lofty rock of Chundergooty in Mysore, a mass of granitoidal gneiss divided by vertical and almost horizontal fissures rises from the schists. From Bunwassi E. N. E. to Savanoor the schists continue. They are intersected by dikes of greenstone accompanied by depositions of "kunker." Near the dikes crystals of liver and

brass coloured iron pyrites are scattered throughout the structure of the schists, and cotton soil alternates on these strips with red clayey alluvial soil.

Near Lackmaisir occurs a calcareous rock similar to the breccia di verde of Egypt which is susceptible of a high polish. From Gudduck east to the Ceded Districts the formations consist of gneiss, hornblendes, slate and granite. The Kupput hills are principally composed of hornblende and chloritic schists and mica slate. The beds of the Dhoni rivulet which rises in these hills contain gravel and sand in which gold dust is found, associated with magnetic iron sand, menaccanite iron ore, grains of platinum, &c. Manganese is also found in considerable quantities. Tippoo here excavated pits for gun flints.

The report concludes with stating the geographical position and extent of the various rocks of the South Mahratta Country. It is mainly the same as that by Dr. Christie, already summarised.

GEOLOGICAL REPORT ON THE BAGULKOT AND THE ADJOINING TALOOKS.

THE district described by Lieutenant Aytoun is included between the rivers Kistnah and Mulpurba on the north, south and east, and a line drawn through Gulguleh, Kulladghee and Badamy on the west. Its outline is nearly triangular, the two rivers forming the sides and the line drawn through Kulladghee the base. Its greatest length north and south is 50 miles, and its greatest breadth east and west 45.

In the district are four sandstone ranges which bend in the direction of the dominant strike of all the rocks from W. N. W. to E. S. E.

The ranges, extending 16 miles to the south of Kutteegeeree, are separated by valleys, in which limestone and schistose rocks are developed, in general covered with black cotton soil.

The first sandstone range extends from Beelgee to Gulguleh and rises to the height of 100 feet. The sandstone rests on grits and conglomerates and these last on granite. About three miles from Beelgee on the road to Gulguleh, trap makes its appearance.

The second sandstone range is about 180 feet high and is composed of sandstone and conglomerate.

The third sandstone range is composed of a jasper conglomerate and a quartzose sandstone. The limestones in the

immediate vicinity of the range are impure, but become purer near the fourth sandstone range.

At Guddunkeeree there occurs an uncommon variety of breccia composed of schists and limestones in a base of calc spar.

In the valley of Kulladghee the rocks are extremely confused. The report however proceeds to describe them and mentions that at Alyoondée are some fine coloured marbles, coloured green principally with chlorite, and in the vicinity a fine-grained lithographic stone.

THE BASIN OF THE MULPURBA.

LIEUTENANT Aytoun in a second paper describes the basin of the Mulpurba in Belgaum. He mentions that it is bounded on the west by the last "ridge of the great overlying trap formation of the Deccan. On the north by the sandstone hills of the Gokauk belt, which here sends an offset to the south, meeting an elevated belt of schistose rocks which forms the eastern boundary.

The river Mulpurba in its course to the north-east has forced a passage through the sandhills near Pursgurrh.

The trap range on the west is about 400 feet high." The rocks met with are the hypogene schists principally. They have all been subject to the disturbing and metamorphic effect of igneous agency, and trap and sienite are developed in many places through the basin.

The report conclude with a description of the Kupputgood hills or gold district. The nucleus of the hills in the immediate neighbourhood of Dumul is granite. The main range is there about 1000 feet high. The gold is found amongst the chlorite slate hills to the west of Dumul.

The chlorite is highly quartzose and indurated. The development of iron pyrites is exceedingly great, and it might be imagined that the small quantity of gold now found in the nullahs was derived from this source. Pepites of gold of a pear shape have occasionally been found. The gold in Australia, when found in small pieces, has sometimes this appearance.

GEOLOGY OF CUTCH.

The province of Cutch is situated between the 22° and 24° of north latitude and 68° and 70° of east longitude. It con-

tains about 6,500 square miles independently of the Grand Ruin which bounds it on the north. The province is hilly and rocky, with the exception of the southern coast which is a "dead flat covered with a fine rich soil." There are no constant streams, the river courses being merely channels for conveying the periodical floods to the seas. They contain at other times only detached pools.

Mr. Grant divides the country into eight distinct formations:—

1. Sienite and quartz rock. 2. Sandstone and clay with beds of coal. 3. Red sandstone. 4. Upper secondary formation. 5. Nummulitic limestone and marl. 6. Tertiary strata. 7. Alluvial deposits. 8. Volcanic and trapean rocks.

The only good example of sienite occurs at a hill called Calunja near the town of Nuggur in Parkur. Quartz rock is principally developed near the town of Mhurr.

Sandstone and clay occupies a considerable portion of the country as may be seen from the map that accompanies the report. The centre of the province is dotted with hills, the smaller of these are composed of a very ferruginous sandstone. Iron ore is principally extracted near the town of Doodye. In extracting the metal, "layers of very small pieces are disposed alternately with others of charcoal, in a rude open furnace, and exposed to the blast of two small bellows made of sheepskins. The metal, when fused, falls into a hole at the bottom of the furnace, whence it is transferred to an enclosed furnace, and subjected to similar blasts, until brought to a white heat, when it is taken out and beaten into a bar. No flux of any kind is used."

Coal is found in this formation and at Bhooj a stratum has been discovered eighteen inches thick. This bed was worked for some time, but the quality of coal extracted was bad. Near Scesaghud boring operations have been conducted but no coal was found. Near Mhurr occur beds of variegated marl and blue clay. From both of those alum is extracted. The manner in which the alum is prepared is simple. The earth in which it is discovered is quarried and exposed in heaps to the sun and air for about five months, "during which it burns spontaneously. It is next laid out in little beds similar to those of a field prepared for irrigation, and it is watered by a small stream for ten or fifteen days, by which time the aluminous matter accumulates into semicrystalline plates. This substance is boiled in water for about seven hours; after which, a third, or one half, by weight, of potash is added, and it is again boiled for a few hours, according to the strength of the ley. It is then poured into large open vessels, where, after settling for some time, it is washed, and the liquid drawn off, leaving an impure crystalline sediment. This is once more boiled, and when it arrives at a proper state,

which is learned by practice, it is poured into large earthen vessels with a small mouth, and sunk into the ground to prevent their breaking. After a time, the vessels are dug out, broken to pieces, and a lump of pure alum extracted. Six or eight measures by weight of alum are produced from ten measures of the substance from the irrigated beds, and four or five measures of potash. It is not so much esteemed in the Bombay market as that brought from China, on account of its yellow tinge."

The red sandstone formation occurs to the south of the coal series, and is separated from it by a low range of hills about six miles broad, composed of basaltic rocks and porphyry; associated with the red sandstone are beds of clay. One of these beds is aluminous and has been burning spontaneously for a long time. This bed has never been worked.

The most characteristic fossils found in the "upper secondary formation," which occupies hollows in the sandstone and coal formation, are ammonites. Eleven species have been collected.

Nummulitic limestone and marl extends from Luckput to a plain between the villages of Wage-ke-Pudda and Eyeraio, about 30 miles to the southward. The stone has the appearance of chalk and the surface soil is composed entirely of small fossils lying loose, called Luckput sixpences. The most characteristic fossils are nummulites, fascicolites, echini, galeries, clypeasters and spatangi.

By the tertiary strata of Cutch is meant all that portion of the province that contains fossils of the tertiary period. They consist chiefly of a hard argillaceous grit covered by beds of pebbles or conglomerate. The principal deposit of fossil shells is at the village of Soomrow. The tertiary beds reach, in one place, to the town of Mhurr, a distance of 30 miles from the sea, and extend in a belt of a third of that breadth throughout the whole southern coast of the province. The alluvial deposits consist entirely of detritus washed from the hills, or of land recovered from the sea by the blowing up of sand. At *Mandavee*, an old ruin formerly the quay is now about three miles inland, and even now a considerable space composed of loose sand intervenes between the town and the sea. This space is continually increasing. "The same operation is in progress at places separated from the main waters of the gulf by small creeks.

Some of these inlets penetrate six or seven miles from the coast through a tract covered for miles in extent with shrubs. At low water these plants are exposed to their roots; but at high tides merely their upper branches are visible, so that the boats sail through a marine forest, the sails and yards frequently brushing against the boughs of the trees."

The district composed of volcanic and trappean rocks is one of the principal features of the geology of Cutch. The principal mass of igneous rocks lies towards the southern department of the province and forms a group of hills called the Doura range. The northern parts of the "range have, for the greater part, a flat, smooth outline; but in the interior of the group are many clusters of small, conical hills, arranged round a circular space enclosing a kind of hollow." Of the detached hills of volcanic origin, the principal is called the Denodur. It is situated near the shores of the Runn and is the largest and highest hill in the country. An irregular crater which is still visible leaves no doubt of its igneous origin.

The report contains other examples of the elevatory effects of volcanic action and mentions some igneous outbursts of apparently a very recent period at Wage-ke-Pudda and in the neighbourhood of Mhurr. The first view of that at Wage-ke-Pudda is very striking. It includes a space of about two square miles "blown out into a flat basin, the sides being broken into fissures with craters, ravines, and hollows; and the interior, or bed of the basin, interspersed with hillocks and cones of every variety of colour, black, red, yellow, and white, and with patches of cinders, similar to the refuse of a furnace." The whole looks as fresh as if the igneous agents were still in operation.

The paper concludes with a description of the Runn, which Capt. Grant considers to have been once covered with salt water.

To the report is appended a systematic list of organic remains.

THE GEOLOGY OF THE COUNTRY BETWEEN HOSHUNGABAD AND NAGPOOR.

This paper is merely a summary, it was written by Lieutenant John Finnis in 1829.

The formations between Nagpoor and Hoshungabad "are trappean, primitive, transition, and secondary, and much intersected by veins of greenstone and trap."

The formations may be divided into five principal divisions.

The first division includes "the tract of country lying between Nagpoor and Baitool to the south bank of the Machna river.

An unvaried formation of trap occurs during the whole of this distance, and the face of the country is covered with round waken boulders."

The second division comprises the space within the Southern and Northern Gháts in the Machna. On the north bank of the

Machna trap no longer appears; it is followed by strata of quartz and mica schist. .

The third division includes the country between the Machna river and the nulla, one and a half miles south of Keeslah. Here all traces of granite are lost and sandstone becomes general. The sandstone extends to Keeslah. About four miles from the Machna and three miles from the Bhora Nuddee seams of coal are displayed.

The fourth division comprises the low range of hills between Keeslah and Putroda. These hills form a part of the great range of Mahadeo hills. Kunkurs, and a mica schist formation occur in this division.

The fifth division extends from Putroda to the Nerbudda at Hoshungabad. After passing through the hills a rich field of cultivation opens to view, and the rocks are lost under the deep alluvial soil of the valley of the Nerbudda. The report closes with a list of specimens collected in the several districts.

PERIM ISLAND.

PERIM island is situated in the Gulf of Cambay nearly opposite the estuary of the Nerbudda river. It is separated from the coast of Guzerat by a channel about 75 fathoms deep and 500 yards in width. The island, which is surrounded by an extensive rock reef steep on all sides but the south, is three miles in circumference. The highest point of the island is not above 60 feet above the level of the sea. The "Perim light" is about 102 feet above water mark. The island is composed of tertiary strata; the south south east end terminates in a cliff which exposes horizontal beds of puddingstone separated by a sandy clay.

In an experimental boring at the town of Gogah, of the 369 feet gone through, the uppermost 74 consisted of sand and gravel, "11 feet, stiff black clay; 6 feet, sand and clay; 10 feet, soft sandstone alternating with thin seams of different coloured clays; sand and gravel 13 feet, and, lowermost, a very hard siliceous sandstone 9 feet thick. The inferior portion of the section is composed of a great bed of dark clay, which has been penetrated down to 246 feet, containing pyrites and broken shells." The fossils that have been discovered at Perim are a species of dino-therium, giraffe, and boamatherium, besides other forms which prove that the clay conglomerates of the gulf of Cambay contain in them the remains of a very extensive and varied fauna. The fossils mentioned are described at length in the report.

THE CORNELIAN MINES OF BAROACH.

THIS paper was written in 1815 by Mr. John Copland of the Bombay Medical Establishment. The mines are in the wildest part of the jungle and no human habitations are within seven miles, on account of the tigers with which the country abounds. The miners reside at Neemoodra, where alone the stones are burnt. The mines are shafts working perpendicularly downward, about four feet wide and some 50 feet in depth. The soil is gravelly and consists chiefly of quartz sand reddened by iron and a little clay. The cornelian nodules weigh from a few ounces to two or even three pounds, and are scattered in the greatest abundance. Their colour is blackish olive, others somewhat lighter and others lighter still. A native informed Mr. Copland that the first would be black when burnt, the second red and the third white. The stones after they are collected are brought to the village of Neemoodra every evening, spread on the ground, exposed to the sun and turned every fifteenth day until the time of burning, which is only once a year, one month before the commencement of the monsoon. They are then put into round earthen pots about 14 inches in diameter "the bottoms of which having been taken out, and the pots inverted (mouth downward), the pieces taken from the bottoms are put inside, and placed over the mouths to prevent the stones falling out; in this state the pots are placed side by side in a trench of indefinite length, but of which the depth and breadth are about two feet, having a layer of five or six inches of dry goat's dung below, and the same above the pots. This is set on fire about eight o'clock in the evening, all the fuel is consumed before day break, when the pots are removed from the trench to the open air for the stones to cool, which requires about three hours; after this they are taken out of the pots, piled into heaps and chipped, as when taken from the mines, to discover their quality, and are finally thrown into a pit, where they remain till called for (more to be out of the way of thieves than as constituting any part of the operation.) From Neemoodra the cornelians are carried to Cambay by the merchants who come from thence, where they are cut, and formed into the beautiful and much sought after ornaments peculiar to the place."

GEOLOGY OF PARTS OF SINDE.

THE notes were written by Captain N. Vicary in a journey between Kurrachee and Sukkur.

The harbour of Kurrachee is protected by two rocky islets and Minora Point. Minora Point is connected with the Hala range, which exhibit in descending order conglomerate, clay and sandstone, upper bone bed, sandstone fossils, lower bone bed, coarse arenaceo-calcareous rock with spatangi; pale arenaceous limestone with hipponyces, nummulites and charoidæ, nummulitic limestone and black slates.

At present no river discharges itself into the harbour at Kurrachee, but there is every reason to think that at one time a branch of the Indus discharged itself there. The sea breeze is continually drifting dry sand into the harbour and filling it up, and on the land side the harbour is gradually filling up from the quantity of detritus carried into it by every flood of rain.

At Munga Peer, which is a basin enclosed by hills, there are two hot springs. The springs are about half a mile apart. The water is sweet. The northernmost is 124° Fahr. the other is 99°. At Luckee hot springs again occur, in one of these the water is highly mineral, and contains sulphur combined with calcareous matter and some salt. A dense scum is constantly rising to the surface of the pond over the spring and some Sindees, constantly in attendance, skim it off, and take it away in order to obtain the sulphur that it contains. The water from this spring has a great reputation amongst the natives as a remedy in cutaneous diseases. Near the spring in a perpendicular face of rock is a hole about three inches in diameter. Some years since an inflammable gas issued from this, it became ignited and was known by the Sindees under the name of Puri-ka-Chiragh or the Peris Lamp.

Near Peeth at the centre of the Hala range is another hot spring. The water smells of sulphuretted hydrogen. On the left bank of the Gauj fossil bones were discovered in vast abundance. They were crocodilian.

THE BELOCHISTAN HILLS.

THE hill country, the subject of this paper by Captain Vicary, extends from Shahpoor on the western side to Goojeroo on the east a distance of 90 miles, and from the sandstone ridge bordering the desert to the Murray Hills in a northerly direction about 50 miles.

The strike and direction of the ranges and of the valleys is nearly east and west and the mean dip southerly.

From the low sandstone range bordering the desert to the Murray Hills there are seven parallel ranges of mountains.

In the second sandstone range which extends to an unknown distance in an easterly direction the Jullock, Gundava and other passes are situated. The lower ranges of mountains nearest the Murray Hills and parallel with it are formed of a nummulitic limestone. The Murray hills rise to about 3,500 feet above the level of the sea. They present a precipitous escarpment to the southward and the stratification is nearly horizontal. The report closes with a description of the fossils from the nummulitic limestone of Beloochistan. It is followed by a notice by Dr. Fleming of the Geology of the Sooliman range.

THE GEOLOGY OF SINDE.

THERE are two papers on the geology of this province, one is by Mr. H. B. E. Frere and the second by Mr. H. J. Carter. The first is merely a letter addressed to Colonel Sykes announcing the despatch of certain tertiary fossils, chiefly bones of mammalia from the hills south west of the Munchar lake, and the other is more particularly on the larger forms of fossilised foraminifera in Sinde.

The description of the foraminifera passes from the "simple nautiloid form of *Operculina*, in which the spire and septa are all visible exteriorly, to *Assilina*, where they are more or less obscured in the centre; thence to *Nummulina* where there is an addition of compressed chambers on each side the central plane, expanding above and below into the globular form of *N. obtusa*; and elongating in *Alveolina*. Returning to the subgenus of *Nummulina*, which presents the 'reticulated structure' above and below the central plane, we pass on to *Orbitoides*, where the characteristic spiro-central plane of the nautiloid forms of Foraminifera is beginning to disappear, and then to *Orbitolites*, where it is entirely lost; ending with *Cyclolina*, which bears the same relation, in the simplicity of its structure to *Orbitolites*, that *Operculina* bears to it."

Plates accompany the report.

GEOLOGY OF THE SOUTH EAST COAST OF ARABIA.

THE information continues in this Memoir by Mr. H. Carter was compiled chiefly from information obtained by Captain Sanders and Lieutenant Grieve.

The report although it only mentions the south east coast of Arabia commences at the straits of the Persian gulf, from thence proceeds to Ras el Had, then follows the south eastern coast and its islands to the straits of Bab-el-Mandeb, and crossing over to Berbera pursues the African coast as far as Socotra. The report commences with a geographical description of the coast.

The mountains which form the promontory of Ras Massandam on the western side of the Persian gulf suddenly rise from four hundred feet, the height of a small island called Massandam, to two and three thousand, and as they progress south eastward to six thousand feet above the level of the sea. They are this height at Maskat where they are called the Jibal Fallah. They terminate at the "Devil's Gap," and are there 6228 feet high. Between the mountains and the coast is a plain called Batana, which extends to within 14 miles of Maskat. From the southern boundary of the Devil's Gap, the outlet of the great valley that ramifies up among the mountains of Oman, a group of mountains extends towards Ras el Had.

The eastern extremity of Arabia is truncated and presents a coast facing due east of about 20 miles in extent, with a sea cliff about 100 feet above the level of the sea.

The sea-cliff ceases after the eastern extremity is turned and the land sinks to the level of the sea.

"After Masira, the mainland begins to rise again, and a sea-cliff first commences at a Cape called Ras Kabret in 19° 57' N. lat. and 57° 48' E. long. The land, however, on the western side of the bay, called Ghobat Hasish which is a little to the north of Ras Kabret, is 80 feet above the sea, and goes on increasing in height, until it attains an altitude of 480 feet at Ras Markas, which is close to Ras Jazirah. On account of the coast here running north and south for 100 miles, and therefore obliquely to its general direction, which is NE. and SW., we not only see that the land rises towards the SW., but that it rises also towards the south.

From Ras Jazirah, where the cliff, from its height and whiteness, very much resembles that of the south-east of England between the North Foreland and Beachy Head, the coast gradually increases in elevation to 800 feet which is its height about the centre of Curiyah Muriyah Bay; but as we approach the south-western horn of this bay, its outline and horizontality become disturbed, and suddenly it attains an elevation of 4,000 feet, which it preserves, more or less, on to the Yaffai mountains, at the Straits of Bab el Mandeb.

Opposite Curiyah Muriyah Bay are five small islands, which, in point of size, are hardly more than the tops of so many mountains; they are about twenty miles off shore, and the largest and

highest, which is Hallaniyah, has a point 1,645 feet above the level of the sea. There are also two or three still smaller, much further on towards Aden, viz. opposite Hisn Ghorab, about sixty miles south-west of Makalla. These are all the islands on this coast.

The chief features of the land between Curiyah Murivah Bay and the Straits of Bab el Mandeb are, that here and there it is more or less tabular in its outlines; here and there more or less broken into mountainous peaks; here and there more or less interrupted by ravines; five times by great valleys; and once (in the Bay of El Kammar) by a tract of low land forty to fifty miles in breadth, which, running SW. and NE. between the mountainous ridges of which this elevated coast is composed, thus separates them longitudinally as far as the eye can reach.

Throughout, the high land is more or less scarped upon the sea or the maritime plain, and the latter seldom more than ten miles in breadth. Its colour is for the most part white, particularly where it is weatherworn, but here and there black or brown, where it is confronted by, or mixed with, rocks of an igneous origin."

With regard to the geology of the south east coast of Arabia the first thing that strikes the enquirer is the continuity of the limestone formation, which extends a distance of 1125 miles. The next point of interest is the eruption by elevation and outpouring of igneous rocks along the great line of fracture that forms the coast, and lastly the elevation of the land from 4000 to 6000 feet above the level of the sea that half brought to light other formations lying beneath the white limestones.

The igneous rocks comprise all the principal kinds and most of the varieties, by far the greater part of them are hypogene, the rest volcanic. The presence of gneissic strata in the granite at Marbat shows that some "of this rock is at least secondary; and being mixed up with limestone in the same neighbourhood, identical, but for the changes which such formations undergo when similarly situated, with some of the white limestone series above, further shows that there is granite here, which may be of still later date even than that enveloping the gneiss." The gneiss itself was not seen by Mr. Carter in situ.

On the north eastern part of the coast dioritic and euphotide rocks prevail. These at Masira and Ras Jibsh envelope jaspideous strata. At Maskat, Masira, Marbat, and perhaps Makalla, jaspideous strata are overlain by nummulitic strata, but are never covered by granite or dioritic rocks.

On the south eastern part of the coast there occurs a chain of volcanic rents up to and including Aden, these extend through every-

thing and from them extends an issue of black basalt and other volcanic rocks which cover in different places the maritime plain.

Throughout the coast the original localities of the eruption of igneous rocks appear to have been the principal ones of the subsequent eruptions and outpourings, with the exception of the volcanic rocks, which have come to the earth's surface, where the older igneous rocks do not appear.

The igneous formation Mr. Carter considers to admit of three groups:—1st. The strata of which the highest scarps are composed. 2nd. The nummulitic or compact littoral deposit on the shores especially of Dofar. 3rd. The miliolitic or loose littoral deposit and 4th, the recent littoral deposit.

The first group admits of three divisions. The first or uppermost includes the white limestone series, which extends from the summit of the table land to the commencement of the coloured argillaceous strata. It consists of white calcareous strata of different degrees of hardness and fineness, and is more shelly above than below, and throughout is more or less charged with thin foraminifera. In some parts flints are imbedded. Towards the summit *Cyclolina* and *Alveolina* abound, with bivalves and univalves. Mr. Carter regrets that he cannot state more of the middle part of these strata. The lower most are more or less magnesian and in some parts dolomitic.

The second division comprises the coloured argillaceous series, estimated at 300 feet at Marbat, 175 feet at Ras Sejar and 1,000 feet at Ras Fartak. It consists of red, blue, green and yellow argillaceous strata, sandy shales, and impure limestone in which a red colour is predominant. It contains "in addition to *Orbitolina*, throughout, but most numerous in the lower part, species of *Echinodermata*, *Isocardium*, *Pecten*, *Plagiotoma*, *Exogyra*, *Ostrea*, and *Ammonites*, probably all of the Cretaceous Period."

The third and last division of this group is the micaceous sandstone of which Mr. Carter saw so little that he can only state that it is of great thickness, and though laminated in some places is for the most part massive throughout.

At Marbat it is usually of a "ferruginous yellow ochreous colour" and at Ras Sejar its upper part, the only part exposed, is of a light greenish blue colour, veined here and there with white quartz.

The nummulitic series is seen best at Maskat, on the island of Masira, between Marbat and Ras Resat and at Makalla. At Maskat and Masira it rests on dioritic rocks and euphodite, at Marbat and Masira on the same kind of rocks with granite, presenting at all these places gypsums, and between Marbat and Resat on compact limestone without gypsum.

At Maskat and Masira it consists above of a yellowish compact limestone, pregnant with small foraminifera, below this shells abound and below this corals, then arenaceous limestone, pure sand and conglomerate.

As another part of Masira, on the island of Hammar el Nafur and at Ras Kariat it rests on clays.

Between Marbat and Ras Resat it consists of compact shelly limestone, with coralline limestone below followed by limestone conglomerate.

Mr. Carter was unable to detect *Alveolina* in these deposits.

The third group is chiefly characterised by its loose structure. It is not only met with on this coast but extends to the peninsular of Kattywar.

From the foregoing data Mr. Carter tabulates the aqueous strata at Maskat and on the south east coast of Arabia.

SUMMARY OF THE GEOLOGY OF INDIA.

THIS summary was written by Mr. Carter in 1853, and is reprinted from the Journal of the Royal Asiatic Society. It professes to give a short summary of all the principal facts and conclusions at which an attentive study of the observations of others, and his own experience have enabled him to arrive.

The portion of India summarised in this paper "is comprised within the Ganges and Jumna on the N. E. the Indus and Sutlej on the N. W. the Bay of Bengal and Arabian Sea respectively on the E. and W., and Cape Comorin on the S.; cutting off, however, that angular portion which is N. E. of a line extending from Delhi to Ferozepore, as this would entail a description of the Geology of the Sub-Himalayan range."

Within this tract are representatives of all the Geological series of Europe from the Oolitic period down to the present time, with metamorphic strata and plutonic and volcanic rocks in abundance.

The Oolitic deposits are the most interesting. They contain the coal beds of India iron ore, and a very fair lithographic limestone. In their metamorphic state they appear to afford the white marble of India, which together with the red coloured sandstone another part of the series, form the Taj Mahal at Agra and the sandstone, the material of all the principal buildings of the towns on the Jumna, from Mirzapore to Delhi.

"At Ajmeer and elsewhere the same sandstone, apparently metamorphosed, yields lead and copper; copper is found in the shales also of this series; serpentine in Behar; steatite (potstone) in

many places ; magnesite near Jubbulpore, &c. and the researches of Captain Franklin and Jacquemont in Bundelkund, and Voysey in Southern India would seem to show that the original conglomerate, if not the real bed of the diamond, almost invariably accompanies the Oolitic series ; while the late discoveries of the Rev. Messrs. Hislop and Hunter in the neighbourhood of Nagpore have shown that these deposits abound in by far the most interesting fossils that the interior of India has yet afforded.

The so-called cornelian mines, again, at Rattanpore, about forty-two miles inland from the mouth of the Nerbudda, would appear to be in an old beach, chiefly formed of rounded flints from amygdaloidal rocks."

The report here goes on to enumerate the different formations with the districts in which they occur.

The sedimentary and igneous rocks of India may be thus tabularised :—

The report contains a diagram in explanation of the table.

The theory of the geological formation of India is the following :—

“1st. That the Oolitic series, which appears to contain the coal beds of India, was deposited by rivers flowing from the north.

2nd. That the marine beds of this series (indicated by their shelly nature), at the southern extremity of India, and in Cutch, seem to point to the outskirts of this delta, or the margin of pure salt water during this period.

3rd. That this delta, viz. the greater part of India, was raised above the level of the sea before the Cretaceous and Nummulitic Periods commenced, while its eastern and western borders, extending to the Himalayas on one side, and in the direction of Sind and Beloochistan on the other, still remained under water.

4th. That the deposits of the Cretaceous and Nummulitic Periods, which now form part of the subranges of the Himalaya mountains, and the Hala range of Sind, &c. were formed and raised above the level of the sea, leaving a gulf on each side, one in the present course of the Ganges, and the other in the course of the Indus rivers.

5th. That the Miocene and Pliocene deposits were formed in these gulfs, and were also raised above the level of the sea, causing the latter to retreat almost to its present margin.

6th. That the alluvia of the Ganges and Indus were deposited.

With reference to the advent of the trappean effusions, it would seem—if the coal formation resting on ‘secondary trap’ in the Rajmahal hills should hereafter prove to be a part of the Oolitic deposits, as Dr. M’Clelland supposes, and also to have been deposit on this trap,—that the Trappean Period extended from the deposit of the Oolitic series down to the breaking up of the Miocene and Pliocene deposits, inclusively.

The diamond conglomerate would, then, have been formed after the commencement of the trappean effusions; as it rests upon the Oolitic series the deposits of the Intertrappean Lacustrine formation seem to indicate a long interval of volcanic cessation previous to the outpouring of the basalt, which overlies them in the great trappean district.”

With regard to the coal of the Oolitic period Mr. Carter quotes the opinions of Mr. Ritchie to shew that it will beat the English coal of the carboniferous period out of the market. Mr. Ritchie states :—“ I consider that it will be a valuable coal for steam purposes. At the mint, and also at this company’s workshops in Calcutta, it has been converted into coke nearly equal to that from England, and costing considerably less.”

The summary concludes with a list of authorities from which the information contained in it has been derived.

POLICE IN BENGAL.

Blue Book, dated 20th July, 1857.

On 14th May, 1857, the Government of India submit to the Court of Directors their views on the reform of the Police. They are of opinion that each Lieutenant Governorship should be treated on its own merits, and that reform is most urgently needed in the Lower Provinces. They therefore confine their views to the Lieutenant Governorship of Bengal. They are unanimously of opinion that the appointment of one Police Commissioner for the whole of the Lower Provinces is not expedient, and that the Commissioners should exercise authority over the Police as well as other branches of the Executive. Mr. Peacock alone is of opinion that the Revenue Commissioners are unnecessary, and therefore proposes to abolish seven out of eight Commissionerships, and to appoint two or three Divisional Commissioners of Police. They consider also that a moveable corps of Military Police should be attached to each division, usually employed in station and escort duties, and ready to assist the civil police in case of need. They agree in the proposal to increase the pay of the Police, are unanimous as to the necessity of increasing the number of Deputy Magistrates, and submit the papers to the Court before taking any further steps.

On 28th April, 1854 the Governor of Bengal submits to the Government of India his views on the Police. The first error has been the separation of the offices of Magistrate and Collector, which has left one class of officers, the Collectors, of mature standing, highly paid and with very little work, and another class, the Magistrates, inadequately paid, with very heavy work, and without sufficient experience. "Those who are acquainted with the details of the system are aware that some explanation may be given of what appears, to many, a total want of all training throughout its different branches. But when people, not acquainted with the details, are told that a young civil officer, after being for some time an Assistant, when he is nothing in particular, is made a Magistrate; that after a few years, quitting the Magistracy for the revenue branch, he becomes a Collector; that after a few more years his next step of promotion takes him from revenue duties, and makes him a Judge; that if he be a

man of ability he will probably, from a Judgeship, be moved to the office of Commissioner of Revenue; and that the same ability will, in all probability, next promote him from a Revenue Commissionership back to the judicial bench in the Sudder Court,—when people hear that a civil officer thus oscillates through his whole career between executive and judicial duties, and that each step he gains is one which does not tend to fit him for the step that follows after—when people hear all this, what wonder can there be that the administrative system is condemned off-hand and that all the evidence given in explanation before Committees of Parliament, and then buried deep in folio blue books, wholly fails to remove the ill-impression that has been produced?" His Lordship considers that the true theory of government in India is the entire subjection of every executive officer in a district to a Commissioner at its head. "Even as regards judicial officers, His Lordship is inclined to think that a great advantage is gained by placing them in all matters of an executive nature directly under the Commissioner, just as the Sudder Court in its executive capacity is subordinate to the local Government and by leaving them independent only as regards their judicial decisions." Applying this view his Lordship would equalize the salaries of the chief executive and chief judicial officer of every district, thus placing in each one Collector-Magistrate with control over the whole executive, and one Judge. "In every district there would be one or more covenanted Assistants (including Joint Magistrates and Deputy Collectors) who would be at the disposal of the executive chief, but available for employment under the Judge for some portion, say two days of the week, either as Assessors, or Assistant Judges, in the trial of cases before a full mofussil bench, or in the trial of small original suits, within the jurisdiction of a Moonsiff. The Assistants would thus gain experience in every department both judicial and executive; they would rise as they became qualified to the superior grade equivalent to that of Joint Magistrate and Deputy Collector; and at the end of ten or twelve years' apprenticeship, they would be eligible for independent and responsible employment as either judicial or executive head of a district." There would then be no further shifting from office to office, the best executive officer being usually appointed Commissioner, and the best judicial officer promoted to the Sudder. The standard of pay should be that of the Collector-Magistrate in the North-west. The present establishment is as follows:—

26 Judges,	...	...	...	at Rs. 30,000	Rs. 7,80,000
3 Magistrates and Collectors,	...	...	...	" 28,000	" 84,000
23 Collectors,	...	...	...	" 23,00	" 5,29,000
3 Collectors,	...	...	...	" 18,000	" 54,000
1 Magistrate,	...	...	...	" 28,000	" 28,000
25 Magistrates,	...	...	...	" 10,800	" 2,70,000
4 Joint Magistrates and Deputy Collectors,	...	...	...	" 18,000	" 72,000
4 Joint Magistrates and Deputy Collectors,	...	...	...	" 12,000	" 48,000
11 Joint Magistrates and Deputy Collectors,	...	...	...	" 8,400	" 92,400
100					Rs. 19,57,400

The future establishment would be

26 Judges,	...	...	...	" 27,000	" 7,02,000
30 Magistrates and Collectors,	...	...	...	" 27,000	" 8,10,000
22 Joint Magistrates and Deputy Collectors,	...	...	...	" 12,000	" 2,64,000
21 Joint Magistrates and Deputy Collectors,	...	...	...	" 8,400	" 1,76,400
					19,52,400

With a special allowance of Rs. 3,000 a year for the Judge,
and the Magistrate and Collector of the 24 Pergunnahs,
on account of the expence of a residence at the Presidency,

Rs. 19,58,400

His Lordship explains the effect of this measure on the prospects of the service, and observes, that every man raised to high office will have had about seven years independent executive or judicial charge of a district.

A Note is added to the Minute, dated 3rd December, 1853. In 1836 a Committee recommended that the offices of Magistrate and Collector should be separated. 1st, because all energy was thrown into the revenue work. 2nd, because as Government could not wait for its revenue attention was given to that, to the neglect of police work. 3rd, because men of sufficient standing to be Collector-Magistrates were not active enough for police work. 4th, that the Collector in a permanently settled province has no connection with the agriculturists but such as renders him unpopular. 5th, that the Collectors are apt to call in the police to aid fiscal operations, and 6th, that if the offices are separated each officer will attend to his own work undistracted. Both Lord Auckland and the Court of Directors were opposed to the separation, but it went on gradually, till in 1845, "matters stood as at present, that is to say, the magisterial and fiscal offices were disunited every where except in the three districts of Cuttack, and in the independent Joint Magistracies of Pubna, Malda, Bogra, Bulloah, Fureedpore, Bancoora, Baraset and Chumparun." The result of fifteen years' experience has been unfavourable. There has been a grievous loss of power in maintaining a class of officers with little to do, but prohibited from rendering assistance in police matters, while the Magistrates have

been so inexperienced as frequently not to command the confidence either of the European or native community. "Under the present system, our Magistrates vary from eleven to five years' standing in the service. During that period, when between twenty-five and thirty-one years of age, they are charged with the preservation of peace and order, and with the security of life and property throughout large districts, the real representatives of the character and authority of Government in the eyes of the people, without any official superior at hand to control and guide them, or any but private and irresponsible advice to depend upon; and when at the age of thirty-one their experience is matured, and they have arrived at a period of life when the physical and intellectual powers are together in full vigour, they are transferred to another department of the service, for the special duties of which they have had little training, and that almost forgotten, and where their time is insufficiently occupied, and their energies rust until their turn comes for promotion to the judicial bench." The Secretary further remarks that it is impossible in a permanently settled for a Collector-Magistrate to call in the police to aid him in fiscal matters. He suggests that the opportunity should be taken to revise the arrangements of the service, and proposes the plan accepted and described by the Most Noble the Governor. A table is appended shewing the salaries of Civil officers in each district of Lower Bengal.

On 23rd November, 1854, Mr. Grant records his opinion on the proposed changes. Mr. Grant contends that the system of uniting the offices of Magistrate and Collector is not old, but new. They were united in 1830 or '31 and the experiment pronounced a failure in 1836. The old system was the union of Judge and Magistrate, which was only objectionable in principle so far as it combined the offices of prosecutor and Judge. That objection still continued to exist under the system of 1830, and will not be removed by the system proposed now.

"In 1836, with the offices of Collector and Magistrate united, the police of Bengal was felt to be amiss. Instead of 'any administrative reform,' which, going to the real root of the evil, would have corrected or alleviated it, what was done was, to place the two offices each in separate hands; after which change of system, of course, the police remained much what it was before. But because the disunion of the offices has done no good or little good to the police, have we any warrant for presuming that the reunion of the offices would do it any good? It is very true that we are pressed with the sense of police affairs in Bengal being amiss now. But what is the root of the evil? No one denies that police affairs in Bengal will continue

amiss, till an adequate constabulary force and trusty native officials in the Thannas are provided for it; till Bengal shall be put on an equal footing in this respect with the rest of India. Now no change of names, no shifting of offices will have any tendency to increase the constabulary force, or to give Bengal trusty native officials in the Thannas." What guarantee therefore is there that a Committee sitting six years hence may not undo all again? Mr. Grant does not deny that there is an objection to the inexperience of Magistrates. He only denies that the objection consists in the disunion of the offices. It sprung from the objectionable manner in which Government performed that task. They allotted the light task to a man on high pay, and the heavy task to the man on low pay. Mr. Grant had never heard "a practical objection to the present system which would not be avoided immediately and certainly, by the simple process of transposing the salaries of the two offices, of course with due regard to the public interests in making the appointments to each class of office." The arguments adduced in favour of the scheme from the analogy of other parts of India are unsound. In Bengal the Collector neither has nor ought to have any influence by reason of his office, moreover the wealth of Bengal makes a style of protection necessary which is not required in any other province, and as a simple matter of fact the Magistrates in Bengal, call them boy Magistrates or what you will are more zealous, often more capable, than the Collector-Magistrates pronounced inefficient twenty years ago. There seems no reason to expect a better result now. One-fourth certainly of the gentlemen who make decent Collectors would make very bad Magistrates, and would have been totally incompetent to the double office. Are one-fourth the districts to be entrusted to incapable men? "or are we to have in so many districts the old man and the young man, both in one and the same line of official subordination, the young man at the top, and the old man, until the expiration of his 35th year of service at the bottom?" For these reasons Mr. Grant would oppose the reunion of the offices.

Further though recognizing the excellence of the Governor's scheme, and especially that portion of it which contemplates the creation of provincial Judges, he still disapproves portions of the plan. Mr. Grant holds that the first object should be to dissociate the office of thief catcher and prosecutor from that of criminal Judge; when this end is accomplished the Magistrate and Collector will be found to have been raised too high. Even as it is the power of a Judge is five times as great as that of the Magistrate. "We ought, in my opinion, to attract the soundest heads we can get to this office of Judge, on which in Bengal,

as in all other wealthy and highly civilized countries, the prosperity of agriculture and commerce depends more than on any other single office. In thinking of this subject, we should think not merely of the fact of the wealth and civilisation of Bengal, but also of the cause of it,—the institution of private property in land. The reasons which have induced the wise English people to make their courts all in all, to convert their Exchequer into an ordinary tribunal of justice, and to make their ‘Collectors’ mere taxgatherers, have already operated to a notable extent in Bengal. I am all for progress in this direction. I protest against going backwards.” In a few years judging from experience under the new scheme it would be rare to see a Judge of capacity. It would be so difficult to get officers to work the Magistracy and Collectorate, and a bad officer in that position would be so troublesome that the refuse of the service only would be made Judges. The Government looks to the Magistrate and Collector, the people look to the Judge. Mr. Grant is unable to “support that part of the scheme which would place the Judge under the revenue and police Commissioner.” The Judge should be independent, but he is not independent while his decisions are subject to the control of the Commissioner in any respect. The remark applies still more strongly to the subordinate Judges. The Sudder Court alone is competent to superintend all interior judicial officers.

Mr. Grant proceeds to submit his own scheme. He believes the evil of modern reforms in Bengal to be the accumulation of officers at the Sudder station. He would therefore give every Moonsiff criminal powers up to the extent of three months’ imprisonment. The thannas should be reduced in size, and over every few a head thannadar placed. Over every few head thannadars, there should be a Deputy Magistrate selected from among the thannadars. The Sudder Ameens should be sent into the district with criminal powers say up to one year’s imprisonment, and the officer now called Magistrate, deprived of all judicial powers whatever, should remain at the Sudder station and watch over the whole of the police. Mr. Grant would adapt the arrangements of the service to this system. “I would make the Assistants work at first in the departments of revenue minor criminal justice, *and minor civil justice*. In these departments they would gain their first increase to 500 rupees. Afterwards they might either take charge of a subdivision or work on at the station, with higher powers in those three departments. At every station I would have an officer on 700 rupees of the grade now called a 2d grade Joint Magistrate, and Deputy Collector, as the Lieutenant of the Magistrate, and of the Collector ; working

under both, and ready to assume temporarily the place of either." From thence he would rise either to a chiefship of Police or to a Magistracy. There should be three grades of pay Rs. 1000, Rs. 1500, and Rs. 2500 promotion being by merit. Men incapable of high office but capable of Collectorate work, would then be left on either of the two higher grades, and incapable men would not be made Judges. From both these offices good men should be selected to be Judges. "From both these offices I would promote the good men, and none others to be Judges. If any one objects that I make men Judges who have never been Judges before, I reply, that so must all Judges be first made. But if any one objects that I make men Judges who have not had the opportunities of acquiring in the course of their previous training the knowledge and practice best adapted to form a good Judge in India, I affirm the contrary and I join issue on that question. As the affirmative has been demonstrated over and over again by the greatest authorities on Indian subjects, I will not stop to argue it here. The real fact is that whatever mofussil office an Indian civil servant is in, he begins doing essentially the work of a Judge when he first quits College; and he never leaves off doing it till he takes his annuity." From a Judgeship the promotion would be to a provincial Judgeship or a Commissionership, and thence in the regular line. This Mr. Grant believes would prove a working plan.

On 26th October, 1854, the Secretary to the Government of Bengal submits an application for permission to unite the offices of Collectors and Magistrate in Bengal, as vacancies may occur. On 3rd January, 1855 the Governor General in Council advises that the whole question of the Police in Bengal should be submitted to the Lieutenant Governor of Bengal, as his office has come into existence during the discussion of the question. The permission requested is declined pending a decision of the question.

On 1st March, 1855, the Lieut. Governor of Bengal records his opinion on the objections to the reunion of Magistrate and Collector offered by Mr. Grant. His Honour considers that the measure may be taken alone, that it has no necessary connection with the other measures of reform, though proposed at the same time.

"I suppose that every body will agree with the Honourable Member of Council in desiring that the constabulary force should be as large, and the pay of the police as high as the nature of the service requires, and the Government finances can afford. But I do not see why this expensive improvement, whenever the Government may be in a condition to make it, should not be made just as easily under Collector-Magistrates as

under separate Magistrates ; or what the change in the superior functionary has to do with the pay and numbers of the subordinates."

Even if the measure were contrary to sound principle it is all over India successful in practice. In Bengal especially no unsoundness in principle can exist, for the revenue is fixed, and the work of collection almost a mechanical routine.

"The question of the introduction or non introduction of the proposed measure seems to me mainly one of economy of power. We have Collectors whose duties are of a nature involving heavy responsibility, and requiring a certain maturity of discretion. They must, therefore, be persons of sufficient experience, and must be paid in proportion. Yet it is certain that their time is only partially occupied by the duties of their offices, and there is nothing in the nature of their duties which forms a reasonable objection to their employment as Magistrates. On the other hand, we have Magistrates overworked, and of immature experience, who, though they require naturally the immediate control of more experienced seniors, are practically very much left to themselves ; and who nevertheless exercise functions upon the punctual and discreet discharge of which more of the happiness of the people depends than upon the conduct of any other civil officers of the Government. To give these duties, or (as is proposed) a large portion of them, to the older and more experienced functionary, for whom occupation is declaredly wanting, and to place the junior in immediate subordination to the senior, seems to me a proposition most obviously and necessarily arising out of the circumstances—most sound, expedient, and right."

The objection that a fourth of the service are incompetent to perform the double duties, is an objection to the constitution of the service. There will always be a certain number of incompetents and the only remedy is to supersede them. The Lieut. Governor is therefore heartily in favour of the proposed union.

As to the other changes His Honour assents to the proposal for a grade of chief provincial Judges, and objects to the equalization of the salaries of the Judge and Collector. He also objects to the plan by which the Judge would in certain portions of his work be responsible to the Commissioner. His Honour considers the plan proposed by Mr. Grant for the redistribution of the service too expensive. "My plan would involve scarce any change in the number of officers now employed, or in the amount expended but would slightly reduce both. I would make all the present larger Collectorships, 22 in number, Collector-Magistracies on 24,000 per annum. I would make all the smaller Collectorships, such as Monghyr or Beerbhoom and all the independent Joint Magistracies and Deputy Col-

lectorships such as Pubna or Malda, Collector-Magistracies on 18,000. The total number of these would be eleven. (This would accord with the principle of the Honourable Member's plan of gradations of Magistrates and Collectors.) The Cuttack Collector-Magistracies, which are also Salt Agencies, I would have as at present, viz., 3 on 28,000. I would have 22 Joint Magistrates and Deputy Collectors on the present salaries of Magistrates, viz., 10,800, and, as at present 11 such officers on the lower salary of 8400. My total of officers employed would be 96, and the expense 19,20,000." He agrees that the zillah officers should be scattered, and fully concurs in the expediency of increasing the pay of the Police. On 8th May the Hon'ble J. P. Grant corrects certain misapprehensions as to his meaning, and affirms that his plan would not be expensive, considers that the Darogahs are as a class bad, and that their pay ought to be increased.

On 8th May, 1855, the Honorable J. Dorin observes :—" With projects for fresh outlay constantly before us, and these appeals for the correction of the general administration of the country that can hardly be resisted, we find ourselves with an excess of expenditure over income largely increasing, and which in the present year, or rather I should say the year just past, is estimated to amount to no less a sum than two millions and three quarters sterling."

On 19th May, the Honorable General Low believes either plan would work well, provided Government in the event of the continued division of the offices can afford to give adequate salaries to both.

On 15th May, 1856, the Honorable B. Peacock records his opinion that the reunion of the officers of Collector and Magistrate would be inexpedient, as the principle is obviously unsound.

On 30th April, 1856, the Honorable F. J. Halliday, Lieutenant Governor of Bengal, gives his opinion on Police and Criminal Justice in Bengal. For a long series of years, " complaints have been handed down from administration to administration regarding the badness of the mofussil police under the Government of Bengal, and as yet very little has been done to improve it." For although the pay of Darogahs has been increased, and the enormous size of certain Magistracies reduced, still the " establishments do not comprise more than seventy Executive Magistrates, Covenanted and Uncovenanted, over four hundred and eighty-four Thannahs, being at the average rate of about seven and a quarter Thannahs to each Magistrate, a proportion much below what is requisite; and the distribution of even this number of Magistrates is extremely irregular." The

village police though always believed to be the basis of a good Police Administration, "are kept in a permanent state of starvation, and though in former days Magistrates battled for them with unwilling Zemindars and villagers and were encouraged by Government to do so, it has been discovered in later times that this is all against the Law; and Magistrates, contrary to the doctrine of earlier times, have been actually prohibited from interfering in favour of village watchmen, it being ruled that this is altogether an affair of the people themselves, who may pay watchmen or not, just as they think fit. Village watchmen are now declared to have no legal right to remuneration for service, and (the help of the Magistrate being withdrawn,) they have no power to enforce their rights even if they had any rights to enforce. Hence they are all thieves or robbers or leagued with thieves and robbers, insomuch that when any one is robbed in a village, it is most probable that the first person suspected will be the village watchmen." In 1842, Mr. Millet was of opinion that it was optional with the villagers to pay the village watchmen, and though the Sudder Court have since decided that the Zemindar is bound to fill up the vacancy, they are still divided as to whether they are competent to enforce fulfilment of the obligation by a fine. Mr. Bethune on 27th May, 1851, adduced some strong figures to prove the corrupt state of the village Police, "it appears that the whole number of Chowkedars, (with the exception of six districts from which accounts had not been received when the table was compiled,) was 1,30,805, and, therefore, were they no worse than the rest of the population, the number of persons among them guilty of every kind of offence known to the calendar, at the rate of one in 1,219, would be under 107 annually, or 321 in the three years included in the return. What were the facts? The whole number of Chowkedars dismissed for misbehaviour in those three years, instead of 321, is 1,130.

Of whom, for Murder and Thuggee, ...	...	...	...	19
Burglary, ...	...	...	...	39
Robbery and Theft, ...	...	...	...	357
Total, ...				415

that is to say:—

‘Nearly one-fourth more, in proportion to their number, for these heinous crimes, than were convicted in all the Lower Provinces of Bengal for all offences of every kind.’” On 11th July, 1853, the Marquis of Dalhousie suggested a bill which extended the system now applicable to towns in which a Covenantant Magistrate is stationed over the whole country. Mr. Peacock proved that such a measure would be an infringement

of the perpetual settlement; but observed that the villages were evidently by their constitution bound to support their watchmen. "With this view he suggested that a local investigation should be made in every village, throughout every zillah, of the liabilities to which the village is subject in respect of the maintenance of village police, in order to found thereon a legislative measure for the improvement of that institution. That investigation has now been completed."

The means of trying criminals however require as much improvement as the Police which "certainly do not command the confidence of the people." The people are singularly unwilling to prosecute partly perhaps from apathy but chiefly from dread of the police, and of the uncertainty of the proceeding in our Courts. This fear is well founded as it appears from the returns that of 14 burglaries committed only one is punished, and even in thefts the average of convictions to offences is three to eight. In more heinous cases which come before the Judges' Courts, the average of convictions is two to three of acquittals. And this although a very small proportion of heinous offenders are ever brought to trial.

One great cause of this evil is the inexperience of our Magistrates "whereas in 1850 the average standing of Magistrates was nine years and eight months, it had sunk in 1854 to eight years and five months, and is now, in 1856, so low as six years and ten months. 'In 1850,' says Mr. Grey, 'there were only two Magistrates below the standing of seven years. Now there are 15 such. The youngest officer officiating as a Magistrate in 1850 was of five years' standing. The youngest officer now officiating as Magistrate is of less than three years' standing.'" This evil is increasing. For these reasons the Lieutenant Governor would propose the following measures of reform :—

Chowkeedars.—The following important table shews how the village Chowkeedars are appointed throughout Bengal :—

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowkedars.	Number of Houses to each Chowkedar.	HOW APPOINTED.	HOW PAID.
PATNA.	Chumparun,...	3,578	1,81,881	3,809	48	By Gomastahs and head villagers.	Annually by grain ; some have from 5 cottahs to 20 beegahs of land each.
	Sarun, ...	4,347	2,10,425	5,926	36	Zemindars.	Ditto by cash, from 4 annas to 36 rupees, a few having cloths given them ; by grain from 2 to 24 maunds ; by land from 10 cottahs to 11 beegahs each.
	Patna, ...	3,908	1,32,122	4,380	30	Zemindars and villagers, confirmed by Magistrate.	Ditto by cash, from 8 annas to 36 rupees each ; by grain from 2 to 21 maunds each ; by land from 4 cottahs to 12 beegahs.
	Shahabad, ...	4,948	2,19,949	6,283	35	Zemindars or head villagers, or both.	Ditto cash, 4 annas to 36 ; grain 20 seers to 30 maunds ; land 10 cottahs to 24 beegahs each.
BEHAR.	Behar, ...	4,343	1,42,229	4,582	31	Landholder's omiah and the villagers.	Ditto cash, 12 annas to 36 rupees ; grain 2 to 25 maunds ; land 1 beegah to 5 beegahs each.
	Total, ...	21,124	8,86,606	24,980	—		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowkedars.	Number of Houses to each Chowkeedar.	HOW APPOINTED.	HOW PAID.
BHARUCH-POR.	Tirhoot.	5,473	3,33,485	7,895	42	Zemindars and some by villagers.	Annually by cash, 1 rupee 4 annas to 45 rupees, or land 1 cottah to 2 beegahs each, and a few receive a little grain.
	Purneah.	5,267	2,45,181	7,841	31	Landholders or villagers.	Ditto cash, 12 annas to 36 rupees each; some receive a little grain.
	Monghyr.	2,642	1,32,514	3,086	43	Zemindars.	Ditto cash, 1 rupee 2 annas to 36 rupees; land 8 cottahs to 15 beegahs each.
	Bhaugulpore.	3,740	1,71,482	3,687	47	Ditto.	Ditto cash, from 8 annas to 57 rupees; land from 1 beegah to 20 beegahs each.
Total.		17,122	8,82,662	22,509	—		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chow-keedars.	Number of Houses to each Chow-keedar.	HOW APPOINTED.	HOW PAID.
{	Maldah, ...	1,950	91,817	1,568	58	By the head villagers.	Annually cash, 1 to 48 rupees each, some have grain.
	Dinapore, ...	8,517	2,05,051	5,592	37	Zemindars or head villagers.	Ditto cash, from 4 annas to 42 rupees each.
	Rungpore, ...	3,383	2,17,471	5,077	43	Some by headman, generally by zemindar's omrah, confirmed by the Magistrate.	Ditto cash, from 2 to 36 rupees each; in one thannah a little paddy is added.
	Bograh, ...	4,964	1,23,982	3,100	40	Head villagers, a few by the zemindars.	Ditto cash, from 1 to 36 rupees each.
	Pubnah, ...	3,526	1,81,811	3,611	50	Headmen.	Ditto ditto, 3 to 52 rupees each; a little grain given to some.
{	Rajshahye, ...	3,416	1,41,913	3,839	37	Ditto.	Ditto ditto, 6 to 48 rupees each; one man has 15 beegahs of Chakeran.
	Total, ...	25,756	9,62,045	22,787	—		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowkeedars.	Number of Houses to each Chowkeedar.	HOW APPOINTED.	HOW PAID.
Dacca.	Mymensing,	13,162	3,06,133	4,080	75	Head Villagers or police.	Annually cash, from 3 to 54 rupees each.
	Sylhet, ...	6,937	2,24,386	3,259	69	Landholders and villagers.	Ditto ditto, 1 to 30 rupees.
	Dacca, ...	3,163	2,32,023	4,026	58	Head villagers.	Ditto ditto, 6 to 36 rupees each, and a few are said to be paid monthly from 1 to 3 rupees each.
	Backergunge,	2,357	1,78,104	3,051	58	Landholders.	Ditto cash, from 7 to 42 rupees each.
	Furzedpore,	1,987	1,27,972	1,773	72	Headmen.	Ditto 1 to 52 rupees each ; some have grain.
Total, ...		27,606	10,68,618	16,189	---		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowkeedars.	Number of Houses to each Chowkeedar.	HOW APPOINTED.	HOW PAID.
CHITTAGONG.	Tipperah, ...	5,884	2,37,733	2,768	86	Headmen.	Annually cash, from 2 rupees 8 annas 9 pie to 57 rupees 8 annas each.
	Noacolly, ...	977	90,833	1,867	49	Ditto and police.	Cash, each Chowkeedar receives 12 annas per house monthly.
	Chittagong, ...	944	1,79,763	2,431	74	Head villagers.	Annually cash, from 6 to 30 rupees, some get grain too; and a few monthly at 2 rupees 8 annas each.
	Total, ...	7,805	5,08,329	7,066	—		
CUTTACK.	Pooree, ...	4,584	1,10,814	2,822	39	By Gomastashs and headmen.	Annually, by cash from 1 to 48 rupees; land 1 beegah to 65 beegahs each.
	Cuttack, ...	6,630	2,13,207	5,072	42	Zemindars, confirmed by the Magistrate.	Ditto cash, 1 to 55 rupees; land from 1 beegah to 40 beegahs each.
	Balasore, ...	4,317	96,457	1,978	49	Zemindars.	Ditto cash, 4 annas to 25 rupees; land 1 beegah to 25 beegahs each.
	Total, ...	15,531	4,20,478	9,872	—		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowkedars.	Number of Houses to each Chowkedar.	HOW APPOINTED.	HOW PAID.
BURDWAN.	Midnapore,	11,198	2,95,145	9,123	32	Headmen or the Magistrate.	Annually cash, 2 to 61 rupees; land from 4 beegahs to 143 beegahs each.
	Howrah, ...	1,412	98,756	1,465	67	Zemindars.	Ditto cash, from 19 rupees 4 annas to 39 rupees 12 annas, with some grain each.
	Hooghly, ...	3,168	2,80,493	5,194	54	Zemindar and Magistrate.	Ditto cash, 3 to 60 rupees; land 1 beegah to 36 beegahs.
	Burdwan, ...	2,873	2,13,036	8,848	24	Ditto.	Ditto cash, from 12 annas to 72 rupees, some have some land.
	Beerbhoom,	6,928	1,88,182	10,850	17	Ditto, and some by Sirdar Ghatwals.	Ditto cash, from 12 annas to 136 rupees each; or land from 3 cotahs to 228 beegahs each; or land and grain, producing an estimated income from 25 to 42 rupees each.
BANCORAH.	The Chowkedars and the Ghatwals (who in Beerbhoom hold of the zemindar, but in Bancoorah of the Government) should have been distinguished.						
	Villages,	2,879	1,25,618	3,934	32	Zemindars or villagers, confirmed by the Magistrate.	Ditto, from 8 annas to 71 rupees, and also in kind.
	Ghats, ...	1,127	28,388	4,825	7	By the Magistrate.	By land held of Government under engagements with the old Rajah of Bishenpore, at from 2½ beegahs to 4,152 beegahs per man,
	Total,	29,585	12,29,619	43,739	—		

Division.	DISTRICT.	Number of Villages.	Number of Houses.	Number of Chowdars.	Number of Houses to each Chowkeddar.	HOW APPOINTED.	HOW PAID.
Nuddea.	24-Pergunahs.	2,605	1,53,905	2,788	55	Headmen.	Annually cash, from 8 to 220 rupees 11 annas, also in kind.
	Nuddea. ...	3,054	2,13,576	4,134	52	Ditto.	Ditto cash, from 1 rupee 8 annas to 60 rupees; grain added in some parts.
	Jessore, ...	4,126	2,16,256	4,189	52	Ditto.	Ditto cash, 1 rupee 8 annas to 48 rupees, and ditto ditto.
	Moorshedabad	3,014	1,89,871	4,467	43	Zemindars or villagers, or both.	Ditto cash, from 1 to 48 rupees each, and must have some land or grain added.
	Baraset, ...	1,981	96,901	2,157	45	Headmen.	Ditto cash, from 11 rupees to 60 rupees each.
Total, ...		14,780	8,70,509	17,735	—		
Grand Total, ..		1,59,309	6,28,686	1,64,877	—		

Usually then, particularly in Bengal Proper, the Chowkeedar is appointed by the Zemindar. The average receipts of each man will be understated at Rs. 2 per month, and one rupee for presents. That is we have "a total for the annual receipts of 59,35,572 rupees; and calculating at five for each house in these returns, the population would be 3,41,44,380, upon whom the above amount of taxation would fall at the rate of 2½ pie per head per annum, which is certainly a very light taxation, even at the high rate of receipts above assumed."

It is however necessary to enable the Magistrate to fill up a vacancy in the office of a Chowkeedar or to compel payment of his wages. "It has been objected by some very competent advisers on such subjects, that even when all this shall have been done, we shall be as far as ever from our object; that the village Chowkeedars, at the best, are an untrustworthy, unorganised rabble, and that no real improvement will be effected unless we get rid of them altogether, and organise a rural police according to the newest forms of occidental civilisation. And it is common with those who advocate this method of reform to point to the 34,000,000 or 36,000,000 of the population, and to urge how easily a sum might be raised from them, not greater than they now pay for their imperfect village watchmen which, in the hands of a skilful organiser, might be made to provide for the establishment in each zillah of a well-paid, dressed, and disciplined force, inferior in numbers to the present rural police, but far superior in trustworthiness and efficiency." Some such plan may one day be carried out, but at present it is impracticable. The pay of the Police must also be increased, some 10 or 15 Darogahs being rewarded by places of Rs. 150 each, and ten more with Rs. 200 each. The salaries of the lower grades must also be increased a measure which according to a plan previously submitted will cost Rs. 3,38,609 a year.

The inexperience of Magistrates can best be corrected by the union of the Collectorate and Magistracy, but all improvement is vain unless we can increase the number of the Magistrates. Their paucity is admitted. The proper extent of a Deputy Magistracy is about three thannahs. There are in practice 400 thannahs in Bengal requiring 133 Deputy Magistrates. There are already 33, so that 100 more are required who on a proper scale of remuneration would cost Rs. 4,60,801, or with establishment six lakhs. Even then, with the necessary increase of pay to the Police costing Rs. 3,38,609, the Police charges of Bengal would be little more than those of the North West.

Further says the Lieutenant Governor:—"I am very sure that our mofussil administration will, *ceteris paribus*, be generally efficient, while it is certain to be also acceptable to the

people according to the degree in which it conforms to the simple or Oriental, in preference to the complex or European model. The European idea of Provincial Government is by a minute division of functions and offices, and this is the system which we have introduced into our older territories. The Oriental idea is to unite all powers into one centre. The European may be able to comprehend and appreciate how and why he should go to one functionary for justice of one kind and to another for justice of another kind. The Asiatic is confused and aggrieved by hearing that this tribunal can only redress a particular sort of injury, but that, if his complaint be of another nature, he must go to another authority, and to a third or a fourth kind of judicature, if his case be, in a manner incomprehensible to himself, distinguishable into some other kinds of wrong or injury. He is unable to understand why there should be more than one hakim, and why the hakim to whom he goes, according to his own expression, as to a father for justice, should be incapable of rendering him justice, whatever be the nature of his grievance, or whatever be the position of his adversary." To this principle he would steadily adhere in all arrangements. As to arranging that the Deputy Magistrate should commit cases to the Moonsiff, who should be invested with criminal judicial powers, it is impracticable. There is antagonism often enough between the Judge and the Magistrate "conceive this local antagonism not merely at each zillah station, but all over every district, and the antagonism in each case, not of two liberally-educated Englishmen, but of two half-educated and Orientally-civilised natives, and let those who know the country and people declare what would be the practical result. Conceive every Darogah opposed perhaps to an antagonist local Moonsiff, and every native Deputy Magistrate to a native Sudder Ameen at an out-station; imagine the bickerings, the criminations and recriminations that would ensue. For, though under the greatest provocation, corruption is the last thing which a native ever imputes to an English Judge or Magistrate, it is the first imputation which a native casts on a native, on great provocation, slight provocation, or no provocation at all."

The Lieutenant Governor approves the suggestions of the Law Commission, but would extend trial by Jury to all heinous cases in the interior, would diminish the practice of appeal, and enable the Appellate Court to enhance sentences, and would reduce generally the right of criminal appeal. His Honour considers some other doubtful recommendations of the Law Commission, notices the important bearing of roads on criminal justice, and recommends the institution of a Civil Order of

Merit. Finally the Lieutenant Governor notices a plan for the creation of honorary Magistrates, a plan which has much to recommend it, but to which he is not fully prepared to give his adhesion. Notes by the Secretaries are added, but they contain only the details, the results from which have already been given.

On 18th February, 1857 the Right Hon'ble the Governor General recapitulates the correspondence, and with reference to a general Police Reform for all India observes :—" We shall, therefore, in my opinion, be far more likely to arrive at a sound practical result, and to provide effectually for the protection of life and property throughout India, if we treat each Presidency and Lieutenant-Governorship separately, according to its own wants, of course bearing in mind certain leading principles which must necessarily be common to all, than if we postpone consideration of the Bengal question until replies are received from the other Presidencies, and endeavour to frame one scheme which, with minor modifications, shall be equally applicable to all." His Lordship is decidedly of opinion that the appointment of a single Superintendent of Police is inexpedient, and observes as to a semi Military Police " the nucleus of a semi-military force, sufficient for the occasional support of the ordinary police, as well as for other duties, already exists in the Patna Station Guards, the Bhagulpore Hill Rangers, and the corps which has recently been raised for police service in the Sontal Pergunnahs. The Patna Guards have been organised on their present footing since 1848. They supply personal guards to the Commissioner of the division and the Judges of the districts. They also furnish jail, treasury, and opium guards for these districts, and escort for treasure and prisoners." If the Bhagulpore Hill Rangers were burned into a purely Military Corps, and two more police corps organized the existing force is sufficient for Bengal. The scheme proposed by the Lieutenant Governor of Bengal for increasing the salaries of the Civil Police should at once be sanctioned, as also the creation of ten prize appointments of Rs. 150 a month, and 10 more of Rs. 200 a month for specially qualified Darogahs. His Lordship also believes the appointment of additional Deputy Magistrates as to raise the total number to 200 absolutely necessary. He would divide them thus :—

" First Class, ..	10	at 700,	..	..	Rs. 7,000
Second Class, ..	15	at 600,	..	..	9,000
Third Class, ..	25	at 500,	..	..	12,500
Fourth Class, ..	40	at 400,	..	..	16,000
Fifth Class, ..	50	at 300,	..	..	15,000
Sixth Class, ..	60	at 200,	..	..	12,000
Total,	200				71,500
					12

Rs. 8,58,000"

His Lordship is of opinion that reason no less than experience points to the expediency of uniting the executive offices of a district, and therefore approves the reunion of the Collectorate and Magistracy. "I do not think that the case would be met by raising the salaries of the Magistrates and reducing those of the Collectors, or by putting them upon an equality. An inexperienced Collector may be as mischievous as an inexperienced Magistrate, and it is not desirable that any man should exercise independent authority of any kind over a whole district until he is ripe for it. And even if experience could be secured in both offices, the division of authority is to be avoided rather than sought. As regards the people, I fully believe that what has been called the patriarchal form of Government is, in their present condition, most congenial to them; and best understood by them: and as regards the governing power, the concentration of all responsibility upon one officer cannot fail to keep his attention alive, and to stimulate his energy in every department to the utmost, whilst it will preclude the growth of those obstructions to good Government which are apt to spring up where two co-ordinate officers divide the authority." The Joint Magistrate in each district should however, be charged with the immediate control of the Police. "I incline strongly to the opinion that the proceedings of the subordinate criminal court should be of the simplest possible description. I am also of opinion that there should be no appeal of right from the sentence of a subordinate court in criminal matters; but that the Magistrate should have authority to revise or modify the decision of every Assistant or officer exercising the powers of Assistant within his jurisdiction, and that the Judge should in like manner, have authority to revise or modify the decision of every Magistrate or officer exercising the powers of a Magistrate. The review would take place as a matter of course, and any person would be competent to call the attention of the Magistrate or Judge to any point upon which the decision had

done wrong to any one." His Lordship is in favour of the creation of an honorary Magistracy and "should be disposed to authorise the Lieutenant-Governor to vest with the powers of an Assistant Magistrate, under Act No. XV. of 1843, scarcely equivalent to those of a Justice of the Peace under the English law, any persons of respectability whom he may consider fit to be entrusted with such power." The Hon'ble J. A. Dorin, and the Hon'ble Genl. Low, on 21st and 23rd February generally concur.

On 9th April, 1857, the Honourable J. P. Grant concurs generally but observes:—"I feel doubtful whether two additional police corps, as proposed, would quite suffice to protect Bengal as it should be protected, considering the remarkably small number of regular troops which are now or hereafter are likely to be cantoned within its limits. I fear one corps at Dacca will be an insufficient provision for Eastern Bengal. The Sontal side of Bengal is now amply provided for. There is no reason to suppose that because the last outbreak was there, the next will be there also. I look upon the Sontal Pergunnahs as quieted for ever; but I regard the Ferazy population of Eastern Bengal, filling extensive and populous districts now wholly unprotected, as a source of very serious danger, though a danger which requires only the securities provided in every part of India except Bengal, in order to be fully guarded against." Mr. Grant would rely wholly on the semi-Military Police for the work now performed by Burkundazes. He considers the expense to be incurred for new Deputy Magistrates too great, and would in preference grant criminal powers to civil subordinate Judges. Mr. Grant considers that the result of the Torture Commission strengthens the case against the union of the Collectorate and Magistracy. As to the general question of the union of all executive powers in one hand. "One has only to read a native or English newspaper with a mofussil circulation, to see that those for whom such mental food is provided have no filial regard for Government officers. They are past the patriarchal epoch. What they ask for are good laws, well administered by as many functionaries as the country can fairly claim with reference to its general circumstances, and the taxes it pays. These classes want nothing from Government more paternal than this; less than this they will not accept, and all this they have a right to have. My mature conviction is, that they never can have this, unless incongruous functions are kept in separate hands, and every functionary is required to mind his own proper business." As to the example of the Punjab. "The Punjab has been fortunate in the selection of its work-

men ; but its peculiar good fortune has consisted in this, that its workmen have not been required to make bricks without straw.

For 19 districts of moderate size, containing a population of something upwards of 10,000,000, 7 police battalions of foot, and 27 troops of mounted police, have been provided, at a cost of about 16½ lakhs of rupees a year. Altogether, for the civil duties of this territory, 8½ battalions and 38 troops, consisting of 12,000 men in organised bodies, are set apart. Besides these, for the same territory, there are about 10,000 men called detective policemen, maintained at a cost of about 8½ lakhs of rupees a year, and all this is besides the old village Chowkedars, or watchmen of the country. Knowing this, I was prepared to hear that the extinction of dacoity, and of all crimes of organised violence, in the central districts of the Punjab, may be pronounced complete." On 30th April, 1857, the Honorable B. Peacock records his general assent, but would deprive the Deputy Magistrates of all judicial powers leaving them to the Moonsiffs.

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